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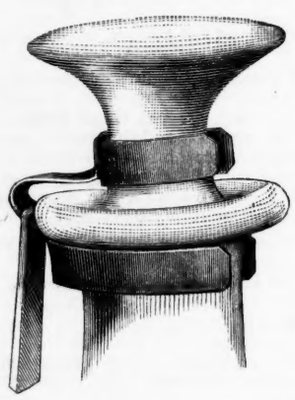
[Original Communication].

SAFETY APPLIANCE FOR POISON BOTTLES.

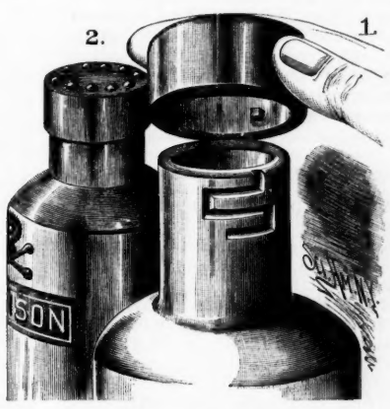
BY FRED. STOCKTON, OF WHEELING, WEST VIRGINIA.

The mistakes of Moses (notwithstanding the opinion of a very learned gentleman, who has aired the errors of Mr. Moses in nearly every city of the Union) were not as many, it seems to me, nor as *fatal* as the mistakes of druggists of the present day. I have perused, with a great deal of interest, the many articles touching on this subject, and the theories advanced for prevention of "cruelty of druggists" or loss of life by their mistakes. The errors in dispensing that have come under my observation seem to be the result of *carelessness* rather than of *ignorance*. A druggist who will put 20 grains of morphine into a prescription when that amount of quinine is ordered is careless, or his mind is not entirely on the work he is doing, as it should certainly be. Now if his attention were called, in some way, for a second, to what he was doing when he had the morphine bottle in his hand, he would surely see his error at a glance. Any one who has any business to compound a prescription or dispense medicines, most assuredly knows the difference between *quinine* and *morphine*, or tincture of aconite and tr. of orange; and if he substitutes one for the other it is a plain case of carelessness. A great many suggestions have been made and ideas advanced in the different drug journals to *prevent* fatal mistakes, but every day new cases are brought to our notice from differnet parts of the country. That something should be done to correct this seeming carelessness is apparent. Good laws have been enacted in nearly every State restricting the sale of poisons, the compounding of prescriptions, and the dispensing of medicines by incompetent persons. But the majority of fatal errors have been made by persons of years of experience in prescription business.

I inclose photographs of a simple device which, it seems to me, will go a great way in preventing mistakes, and which, through the kindness of a friend (a photographer), I have been able to obtain, as it is not placed, as yet, on the market. It consists of two pieces of spring steel or brass, compressed to fit the neck of the bottle and the stopper, and fastened together by a small middle piece with a stamped metal poison-label, which serves as a handle in removing the same. It has advantages over anything I have seen, inasmuch as it is easily removed and replaced, and is easy to hold while using the package. Its simplicity will also make it cheap, so that every one may obtain it at a small cost.



Stockton's stopper-guard.



Howell's safety stopper.

In the *Scientific American* for February 20th is a description of a bottle-stopper invented by Mr. J. H. B. Howell, of Newton, N. J., which demands a special degree and kind of manipulation for the removal of the stopper, wherein the attention of the operator is secured. A lug is formed near the lower edge of the inside of the cover which engages the zigzag groove formed in the outer surface of the neck of the bottle. In order to remove the stopper or replace it the stopper must be turned and raised or lowered to correspond to the direction of this groove. As an additional means of attracting attention the top of the cap is provided with a number of projecting points.

Tannate of Mercury.

E. Merck prepares tannate of mercury in form of brownish-green scales, which form a grayish-green powder when triturated. It is the mercurous tannate, and contains at least 40 per cent of mercury. Concentrated acids or alkalies decompose the salt, metallic mercury being separated in small globules. Diluted hydrochloric acid attacks it but feebly. When treated with water or alcohol, the tannin is dissolved.

This compound was first proposed, in 1884, by Dr. Sigmund Lustgarten, of Vienna, and its efficacy in syphilis tested by Prof. Kaposi. It was found to be a mild antisyphilitic, and is said to produce salivation or stomatitis but rarely. The mercury is separated in such a fine condition that it is rapidly absorbed through the intestinal canal.

It is best given rubbed up with four times its quantity of sugar of milk, and inclosed in wafer-capsules. Usual dose 1½ grains, 3 or 4 times a day.

Acetic Ether in Illuminating Gas Poisoning.

A physician who has had some experience with workmen in gas works says that a few drops of acetic ether, administered on sugar, will usually revive persons who have become insensible from inhaling illuminating gas.

[Original Communication.]

YERBA SANTA AS A VEHICLE FOR QUININE.

BY J. D. AUG. HARTZ, OF COLLEGE POINT, L. I., N. Y.

A vehicle for the successful masking of the bitterness of sulphate of quinine has long been a desideratum to practitioners. This want has been partially met by individuals and firms offering secret elixirs, fluid extracts, etc., which more or less accomplished their purpose, but were mainly designed to enrich the compounders.

Yerba santa, glycyrrhiza, and coffee have in turn been employed, the former with the best results.

A western firm discloses this ingredient in the name of a preparation offered for disguising quinine; other firms hide this drug under fictitious names.

With a view of producing a compound which, by its non-secrecy, may obtain the approval of physicians who desire to prescribe intelligently, and in order to avoid the vexation to pharmaceutists by being compelled to keep on their shelves a number of preparations all designed for the same purpose, I have, after repeated experiments, compounded a mixture for which the name of "*Syrupus corrigens*" is proposed. One fluidrachm will so obliterate the taste of two grains of quinine that only a slight bitterness is perceptible some time after the medicine has been taken.

The first step in preparing it is to exhaust twenty-five ounces of powdered yerba santa (the powdering can be easily accomplished in a drug-mill to a degree of fineness that sifting can be dispensed with) with a menstruum of one volume of alcohol and two volumes of water, regaining the alcohol by distillation, and reducing the remainder over a water-bath to twenty-five fluidounces. In the still, and also in the evaporating dish, will be a copious deposit of resin which seems unessential for the purpose, and is designedly separated, as an alcoholic fluid extract of yerba santa would produce an unsightly mixture.

The next step is the preparation of a syrup by intimately mixing in a mortar three hundred minims of oil of sweet orange with three ounces of finely-powdered phosphate of lime, gradually adding three fluidounces of alcohol, and afterwards, also very gradually, eighty-five fluidounces of water. Transfer the mixture to a bottle, add one hundred and fifty minims of purified chloroform, and shake

vigorously for half an hour, filter, and dissolve in the filtrate one hundred and forty ounces of sugar, add the fluid extract and enough water to make two hundred fluidounces.

The writer would urge a trial of this syrup, as it seems to fulfil its purpose as well as any of the secret preparations which have come under his observation.

NOTES ON PRACTICAL PHARMACY.*

[Continued from p. 23.]

COMPRESSED POWDERS.

It depends entirely upon the nature of the powder, whether it can be compressed into tablets when dry, or whether this can be done only after it has been moistened with alcohol. There are special appliances for this purpose, but the same result may be attained by the use of the pastille-makers described previously. If the stamp *P* (see cut on page 21) is movable by means of the thread of the screw, a powerful compression is obtained. Digne's Compresso-Doseur (sold by apothecary R. H. Paulke in Leipzig) is an instrument especially adapted for this purpose.

As these compressed masses adhere to the gastric mucous membrane for some hours, and, through it, exercise their functions, before they are dissolved or mix with the gastric juice, the lining of the stomach cannot be otherwise than unfavorably affected, and its normal condition disturbed, by many of the substances used in them. This form of medicine is employed by very few physicians. Although they have been known for the last ten years, there are only a few places in Germany where they have met with a favorable transitory reception.

CONES AND SPIRALS.†

Cones or spirals, *tabernacula*, *turbinulæ*, are designations for dry, very light, brittle, fluted spiral cones, from two to three centimeters in height, made of albumen of egg and sugar. Thus far, the only cones in this shape which have come into the market are those of santonin. They are made of a warm mixture of santonin, powdered sugar with starch, white of egg beaten into froth, and some tragacanth, made into little balls by means of a small white metal syringe, with a star-shaped orifice for the mass to pass through. The preparation of these cones is entrusted to the confectioner, to whom is given a definite mixture of santonin and sugar, with directions as to the number of cones to be made. The division of the doses of santonin in this form is very unreliable, and most especially so in the hands of the confectioner! Physicians have, thus far, rightly taken no notice of this form of medicine, and the santonin cones have remained merely articles of commerce in the hands of the apothecaries, where they often remain, packed in cotton, awaiting consumption. If would be desirable if apothecaries would replace these santonin cones by the officinal santonin pastilles. The following is the prescription for their preparation:

SANTONIN CONES OR SPIRALS, WORM-CANDIES. 250 parts SUGAR, 25 parts WHEAT STARCH POWDER and 1 part TRAGACANTH finely powdered are mixed together, and 250 parts ALBUMEN OF EGGS, which has been beaten to a stiff froth, added thereto with constant agitation, and evaporated in a moderate heat (50 to 60° C.) stirring all the while, until the mass will no longer drip off from a wooden spatula. A mixture of 5 parts SANTONIN and 10 parts SUGAR, in power, is then carefully stirred into the mass, which is then put into an icing-syringe (a confectioner's utensil) and formed into cones so that each one contains about 0.025 grammes of santonin. The cones, having been spread out on porcelain surfaces, are then dried in a shady, moderately warm place, and kept in tin boxes packed in cotton.

BACILLULA.

BACILL, *Bacillula* are a new form of medicine which have made their appearance in some places. They have the appearance of small, nearly cylindrical rods, and in their composition, preparation, and consistency they bear a close resemblance to pastilles, except

Santonin Cones:—1, Pyramidal shape; 2, Star shape; 3, Snail shape.

that there is less of detail in their preparation, which is easily and more quickly attained with the help of a pill machine. Bacillula are made from 0.3 to 0.6 grammes (4–9 grains) in weight, and from 1.0 to 1.5 centimeters (⅜–⅝ inch) in length. Bacillula are given in cases where the patient has a repugnance to pastilles, or when the physician wishes to administer a medicine of small volume, or in a different form.

The division of the mass from which bacillula are made is done by means of the pill machine in precisely the same manner as that employed for pills, except that the pill-strand is not formed into pills, but only cut into pieces and each portion rolled lightly

Bacillula of various sizes.

under the middle finger on the board of the pill machine, in the direction of its long axis, so that the somewhat rough places at which the pieces were attached to each other are to some extent smoothed off. Bacillula are consperged with lycopodium if no other is prescribed.

The bacillula, when finished, are allowed to dry for an hour at the ordinary temperature, and then for half an hour in a moderately warm place. The manufacture of from 20 to 50 bacillula requires about two hours.

℞ Morphinæ acetatis	0.0025	gr. ¼
Ligni Santali rubri pulv	0.005	" ⅛
Sacchari albi	0.5	" 8
Aquæ glycerinatæ	q. s.	

M. ut fiat bacillulum. Dentur talia bacillula 100. S. One every four hours.

℞ Morphinæ acetatis	0.25	gr. 4
Ligni Santali rubri	0.5	" 8
Tragacanthæ pulv	2.0	" 30
Saccha i albi	50.0	" 770
Aquæ glycerinatæ	10.0	" 150
Aquæ destill	gtt. 10 vel q. s.	

M. fiat massa, ex qua formentur 100 bacillula.

Bacillula should not be confounded with little staves known as bacilla,* an antiquated form for the administration of medicine, little used at the present time, but which are sold by apothecaries, such as anise rods, or purified licorice. These little staves were made from 4 to 10 centimeters (1½–4 inch.) and upward, in length, and 0.5–0.7 centimeters (⅜–¼ inch) in thickness.

SUGAR GLOBULES.—SUGAR LOZENGES.

SUGAR GLOBULES, SUGAR LOZENGES, *Rotulæ Sacchari* are white cakes, each about one centimeter in thickness, in the shape of segments of a sphere, which, when saturated with oil of peppermint, constitute the favorite peppermint lozenges. The physician sometimes selects them to administer an ethereal oil or some medicinal fluid in small doses. Should this fluid be of

Sugar globules and lozenges. *A*, side view; *B*, upper surface.

small quantity in comparison with the number of sugar lozenges, it must be diluted with several times its bulk of absolute alcohol, and the sugar lozenges saturated with the mixture in the same manner as the Pharmacopœa Germanica prescribes for the preparation of *rotulæ menthæ piperitæ*.

℞ Rotularum Sacchari	20.0
Olei Anisi,	
Olei Fœniculi	ää gtt. 20.

or, with the intervention of alcohol:

℞ Rotularum Sacchari	20.0
Olei Anisi,	
Olei Fœniculi	ää gtt. 20
Spiritus Absoluti	gtt. 30

MORSELS.

MORSELS, *Morsuli*, are parallolepipeds, or quadrangular oblong tablets, about 5.0 centimeters long, 2.5 wide, and 0.5 thick (2 inch. × 1 inch × ⅜ inch). This form of medicine has almost entirely fallen into disuse.

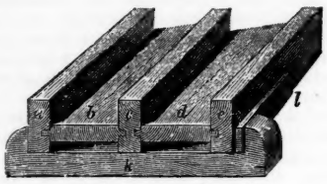
Morsels are prepared in the following manner: the sugar having been broken into small pieces, is boiled with one-quarter of its weight of water in a copper (not tinned) pan which is furnished with a lip, over a coal fire without stirring until it assumes a feathery consistency. When a portion of the mass taken out with an iron spatula and thrown briskly through the air falls in the shape of light feathers, the sugar has reached a point at which it is to be taken from the fire and stirred with a spatula until it begins to lose its transparency somewhat, and the ingredients, for example powders, almonds cut in fine pieces, coarsely powdered spices, etc., are then mixed in and stirred round. The mixture, still in a fluid state, is then poured into narrow four-cornered paper capsules, and as soon as it is half cold, divided into oblong four-cornered pieces, with a sharp and very thin-bladed knife. Instead of the paper capsules, a morsel-mould may be used. This consists of three long splints (*a*, *c*, *e*) which are held together by two cross-pieces (*b*

* The basis of this series of papers is the last edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [ ]. The use of the original text has been kindly granted by Dr. Hager

† These cones, as well as the bacills next described, are not used in this country.—ED. AM. DR.

* Some of the text-books incorrectly give *bacilli*, but the nominative singular is *bacillum*. The word *bacillus* does not exist in the Latin language.

and *d*) of equal dimensions. The long splints and the cross-pieces are brought into reciprocal and firm connection by means of two or three clamps (*k*) and with the aid of wedges (*e*). The length of a morsel-mould is about 80 to 100 centimeters (31–39 inch.), the thickness of the long splints 4 centimeters (1½ inch.), that of the cross-pieces 3 centimeters (1⅛ inch.), the distance between each two of the long splints, 4.5 to 5.5 centimeters (1¾–2¼ inch.). All the parts of the mould can easily be separated one from the other, and are made of straight-grained oak-wood. The morsel-mass is poured into the space be-



Section of morsel-mould.

tween the long splints, which should have been wiped off with a moist sponge just previously, and then quickly spread out with a spatula into a layer as nearly as possible of a uniform thickness, and the mould then shaken and knocked against its support so as to obtain a smooth upper surface for the mass. When the mass is half hardened, the wedges must be knocked out, the long splints taken off, and the mass while yet warm, cut into pieces with a thin-bladed, sharp knife.

In the preparation of morsels with lemon-juice, finely-powdered sugar is mixed with one-eighth of its weight of lemon-juice, heated to the boiling point, and after long-continued stirring the semi-fluid mass is poured into the form.

CONSERVES.

CONSERVES, *Conservæ*, are mixtures of vegetable substances with sugar to the consistence of a thick electuary. They are generally made of fresh herbs. The fresh leaves, flowers, etc., having been cleansed from dust and sand by shaking and washing, are triturated in a stone mortar, with a wooden pestle, into the finest or softest possible pulp, mixed with about twice its quantity of powdered sugar, and thoroughly worked together, and the homogeneous pap rubbed through a coarse hair-sieve. The addition of the sugar is only to be continued until the pap is of the consistence of a thin electuary that can easily be rubbed through the hair-sieve. The sugar needed to make a stiff electuary should be added to the mass that has been rubbed through the sieve. Vegetables that are rich in sap require three to four parts of sugar, those less rich in sap two to three.

The *Conserva Rosarum* is made either from fresh red rose leaves with twice their amount of sugar, or from the powder of dried leaves which have been macerated for several hours in double their quantity of rose-water, with an addition of eight times their quantity of sugar.

PASTES.

PASTE, *Pasta*, is a comprehensive designation of medicaments which have the consistence sometimes of boli (*pasta mollis*), sometimes of pill-mass (*pasta compacta*), and sometimes of morsels (*pasta dura*). If the prescription does not designate the degree of consistence, and the dispenser has the choice, he should make it of the consistence of boli. Cocoa paste and those that are formed from it, are always hard when cold. Pastes for external use have commonly the consistence of a stiff electuary, or that of boli.

GELATIN LAMELLÆ.

Many years ago a kind of medicine in the form of thin, dry gelatin tablets, known as *gelatina medicata in lamellis s. gelatina lamellata*, was recommended (Almin in Upsula) under the claim of being better and more lasting. Although this form of medicine has up to the present time gained no acceptance, and will probably find it difficult to do so in future, still the prescription for it is given, in case a physician should happen to require it.

[Dr. Hager is mistaken when he states that this form of administering medicines has found no acceptance. On the contrary, such gelatin doses have been used considerably, particularly for making applications to the eye, and the last Brit. Pharm. has officially recognized three different kinds, containing atropine, cocaine, and physostigmine respectively. — ED. AM. DRUGG.]

Gelatin lamellæ are usually prepared by dissolving gelatin or white gum in distilled water, to which is added a little glycerin and the desired drug, and the mixture having been dried on glass plates, the gelatin sheets thus obtained are cut into squares, each of which contains a definite quantity of the medicinal matter.

The process can be accomplished in the following manner: On a smooth slab of slate a space of 100 (10x10) square centimeters is laid off in 100 squares by scratching the slab with the corner of a steel chisel, in such a manner that the dividing lines make perceptible furrows. This space is then surrounded with a frame of small wooden staves which are attached to the slate-slab by means of gum-mucilage. The squares and furrows are then painted by means of a brush with a thin, warm solution of 5 parts paraffin, and 1 part olive oil, in 30 parts benzin. This coating should be allowed to dry thoroughly before pouring the gelatin-solution on the squares.

The gelatin-solution consists of 2 to 3 grammes of white gum, or pure gelatin, 5 to 10 drops of glycerin, and 50.0 grammes or cubic centimeters of distilled water, in which the medicinal substance, for instance, *extractum opii, morphine salts*, is dissolved, or suspended in the form of an emulsion.

The gelatin-solution, still at a heat of about 40° C., is then poured over the square divisions of the horizontal slate slab, so that the space inside of the frame is filled thereby. It is then to be exposed for several hours at the ordinary or moderate temperature, and then to a heat of about 30° C., or to such a heat as will not melt the gelatin sheet. When the sheet has become dry and hardened, it is removed by means of an erasor, and cut with shears into square pieces of equal size, which is readily done, since the gelatin sheet is marked with elevated lines corresponding to the ridges cut into the slate. The drying of the gelatin-solution can also be done on glass plates. From one to two days are required for the drying of the gelatin layer.

(To be continued.)

Extract of Kava Kava as a Local Anæsthetic.

DR. LEWIN, of Berlin, finds that the resinous extract derived from the root of *Piper methysticum*, which is soluble in alcohol, possesses the power of causing local anæsthesia. It has a somewhat aromatic taste, followed by a sense of pricking and burning, which is soon lost in the local insensibility which follows. When a solution of the extract is injected under the skin, the tissues in the neighborhood fail to respond to stimulation by heat, chemicals, or electricity, and its effects are not followed by inflammation.

Lanolin: A New Base for Ointments.

AT a meeting of the Berlin Medical Society, held on Oct. 28th, 1885, Professor Oscar Liebreich read a paper on *lanolin*, the new base for ointments, from which we abstract the more important and interesting portions.

Lanolin is such a peculiar substance that it deserves to occupy a distinct place in the series of fatty bodies, separate from ordinary fixed oils or fats (so-called glycerin-fats), as well as from mineral oils or fats. Prof. Liebreich's experiments have already shown that it fulfils conditions not attainable by any other fatty bodies, as a vehicle for endermic medication.

The use of plasters and ointments, at certain periods regarded as a subordinate form of treatment, has recently again attracted the attention of pharmacologists, since it has been demonstrated that the local application of certain remedies in quite a number of diseases is of undoubted advantage.

It has been shown by Fr. Hartmann and E. Schulze that the fat of sheeps' wool, commonly called suint, differs from ordinary fats by its fatty acids being combined with cholesterin. And Schulze subsequently proved that a portion of the fatty acids was also combined with isocholesterin. Although cholesterin is a very common constituent of the animal organism, it appears singular that these observations of Hartmann and Schulze have been almost entirely overlooked by physiologists. These very compounds, moreover, had been known to chemists since 1860, when Berthelot obtained a series of cholesterin-fats by heating cholesterin with fatty acids. And Berthelot even advanced the supposition that these fatty compounds played some important rôle in the organism, without, however, being able to prove his guess.

As soon as the presence of cholesterin-fats had been recognized in sheep's wool, the question arose, whether this was a solitary occurrence—such as the existence of spermaceti in the cranial cavity of the sperm whale, and in the oil-bag of the goose—or whether they were more broadly distributed, like the glycerin-fats.

The investigation of the cholesterin-fats, which was at first quite difficult, owing to the absence of decisive tests of identity, was rendered possible by Liebermann's discovery of a reaction for cholestol, a body closely related to cholesterin, which is as follows: a portion of the fat—and a very small amount is sufficient—is dissolved in acetic anhydride ($C_4H_6O_3$; not to be confounded with anhydrous acetic acid, $C_2H_4O_2$). Upon addition of concentrated sulphuric acid there is at first produced a rose-red color, which soon changes to deep blue or green. The acid must be added with great caution; the smaller its quantity the more distinct will be the colors produced. Prof. Liebreich suspected that this reaction would also be applicable to cholesterin, and found this confirmed by experiment. Cholesterin-fats, which were known to contain not a trace of *free* cholesterin, gave the cholestol reaction with great distinctness, while glycerin-fats of various composition never responded to it. Even such substances as protagon—the disputed existence of which is now established beyond a doubt—lecithin, spermaceti, and beeswax gave negative results.

In his search for cholesterin-fats, Prof. Liebreich first examined those tissues which contain keratin ("horny substance"), viz., the human skin, hair, fish-bone, tortoise-shell, hoofs, feathers of different animals, etc., etc. In all of these, the presence of cholesterin-fat—which was extracted by chloroform—could be detected by the above test. In addition to the latter,

its presence and identity was proven by its capability of taking up over 100 per cent of water. Prof. Liebreich has applied the term "lanolizing" to this property, which was first observed in suint, and is inherent in nearly all cholesterin-fats, while mixtures of glycerin-fats and cholesterin are devoid of this property.

[Prof. Liebreich then gives a detailed account of the views entertained by others and himself regarding the function of the so-called oil-bag in birds, and its relation to the fat deposited in and upon feathers. He then discusses the origin of the fat in animal hairs. It is generally supposed that its presence in the hair is due to its secretion by the sebaceous glands. But he points out that the hair of certain animals in which the sebaceous glands are scarcely at all developed, nevertheless contains cholesterin-fats. And he has, moreover, found that the hairs of *one* animal which has no sebaceous glands at all, viz., the sloth (*Bradypus cuculliger*), gives the cholestol reaction. He believes that the sebaceous glands furnish fat to the *exterior* surface of the hairs, keeping them pliable and more or less water-proof. But this fat he regards as distinct from that which is contained in the horny substance itself.

The author states that there is one, or possibly more than one horny tissue which contains a fat differing from the cholesterin-fat; such is the case, for instance, in the feathers of the penguin.]

Up to within recent times, neutral glycerin-fats have been employed for the preparation of salves and plasters, and for some years past, many of them have been prepared with mineral fats, such as vaseline. The German Pharmacopœia even adopted an artificial mixture, made from solid and liquid paraffin, under the name Unguentum Paraffini. But there are decided objections against the latter, among them being this, that its constituents very commonly separate under the influence of the heat of the body. Salves made of common fats often suffer decomposition when applied to the skin, whereby irritation is liable to be produced; besides, the resorption of medicinal substances mixed with the fat is quite imperfect. Though vaseline is not subject to decomposition, absorption of substances mixed with it is still more difficult. [It has been shown, however, that even vaseline or other petroleum ointments are liable to become rancid, and A. Joerss has shown that medicinal substances mixed with petroleum ointment are by no means rejected by the human skin. See our vol. for 1885, page 148.—ED. AMER. DRUGG.]

Prof. Liebreich was particularly struck by the fact that cholesterin-fats are very easily absorbed by the skin. Since they are derived from tissues containing keratin, he believes the former property to be connected with this relationship.

He has applied the name *lanolin** to the combination of the neutral cholesterin-fat with water.

Jaffé and Darmstädter, of Charlottenburg, manufacture lanolin by emulsifying suint or wool-fat to a thin milk, and subjecting this to centrifugal action. The result is similar to that observed in churning milk: there is obtained a skim milk or whey and a thick cream, which latter is pure lanolin.

This substance is capable of taking up more water than any other fatty body known. More than one hundred per cent may be incorporated with it by kneading, the result being a light-yellow, very plastic salve. The fat does not dissolve in water, but on the addition of soap and alkalies, a thick milk is at once formed. A very important property of the substance is its absolute neutrality.

Lanolin being so resistant to the effects of alkalies, a spontaneous decomposition of the pure product is impossible. It mixes readily with glycerin and other fats, and may thus be made into very handsome, cream-like salves. It possesses a slight odor.

As an instance of its readiness to part with medicinal substances mixed with it, Prof. Liebreich states that a small lump of lanolin ointment (of the size of a pea) containing five per cent of carbolic acid, when rubbed into the hand, produced numbness after one or two minutes, without any caustic effect. Corrosive sublimate salve (1 in 1,000) made with lanolin, on being rubbed into the skin, is so rapid in its effects, that the characteristic metallic taste due to mercurial resorption is noticed already after a few minutes.

Since lanolin is so rapidly absorbed by the skin, that it will not even stand long friction without leaving the skin dry, it is advisable to mix it with 5 to 10 per cent of fat or glycerin. Mercurial ointment, for instance, may thus be prepared. These ointments or salves may become a little dry and darker at the surface, but this is no sign of any decomposition.

[Lanolin may shortly be obtained from the importers through any wholesale drug house.]

*From *lana*, wool, and *oleum*, oil, "wool-oil."

Iodol.

IN our last December number (page 224), we gave a brief account of this new antiseptic, which we now supplement by further information derived from the report of Dr. Vulpius (in the *Arch. der Pharm.* and abstracted in the *Pharm. Post*).

The crude material used at present for the preparation of iodol, but which is likely to be replaced by a cheaper one in the course of time, is the volatile animal oil, so-called "Dippel's Animal Oil." This is known to contain bases belonging to the pyridine and chinoline series, nitrites of the fatty acid series, phenol and its homologues, naphthalin and other hydrocarbons, and besides also considerable proportions of pyrrol and its methyl derivatives. According to the process, for which a patent has been applied for, iodol is prepared by freeing the pyrrol ($C_4H_4.NH$) as much as possible from accompanying substances, and its solution is afterwards treated with solution of iodine in iodide of potassium whereby tetra-iodo-pyrrol ($C_4I_4.NH$) is precipitated in a crystalline state, while at the same time 4 molecules of hydriodic acid is produced. And it is the tetra-iodo-pyrrol which has been given the shorter name of *iodol*.

In the condition at which it is at present sold, it appears as a light-brown powder, which becomes darker on exposure to light, and should, therefore, be kept in the dark. [When perfectly pure it is said to suffer no alteration by exposure to light.] It is almost tasteless, and has a faint odor resembling that of thymol. Under the microscope it appears as a débris of considerable fragments of lamellar and columnar crystals, of a slight yellow color. On being heated to 212° F., iodol does not appear to alter, nor does it lose sensibly in weight when heated at that temperature in an open capsule. When heated more strongly, it gives off copious vapors of iodine, and finally yields a very voluminous charcoal, difficult to reduce to an ash.

Iodol has no affinity for water, and, in fact requires at least 5,000 parts of it for solution. This is a disadvantage. On the other hand, it is very soluble in alcohol, requiring only 3 parts of absolute alcohol, which is much less than iodoform needs. The solubility, however, diminishes so rapidly with its aqueous dilution, that the addition of 25 per cent of water to a 10 per cent alcoholic solution of iodol already causes a milky turbidity, owing to the separation of this body. In the same manner, a 5% alcoholic solution will stand but little more than 30, one of 2% little more than 50, one of 1% little more than 80, and one of 0.5% only about 100 per cent of water, without becoming turbid.

Different results are obtained when glycerin is added. Though iodol is soluble in glycerin only with the aid of heat, and even then very slightly, still a 20% alcoholic solution of iodol can be mixed with an equal volume of glycerin (as anhydrous as possible), without producing turbidity; and a 10% solution even with four times its own volume. These solutions are all rendered turbid by the addition of water.

Iodol requires less than its own weight of ether for solution, but it requires not less than 50 parts of chloroform. Benzin, paraffin, or oil of turpentine do not dissolve it sensibly, but it is soluble when warmed with carbolic acid of 90%, from which it is, however, separated again on cooling, in needle-shaped crystals. Fatty oils dissolve iodol but very slightly in the cold, but olive oil dissolves as much as 15% by the heat of a water-bath, and, on cooling, this does not at once separate again. All stronger solutions of iodol have a more or less dark tint from the very beginning, aside from the effect which light may subsequently have upon them. The same is the case with mixtures of iodol with fat or vaseline. Iodol is also copiously dissolved by aqueous solutions of alkalies (also ammonia), but is separated again when the alkalies are neutralized with an acid.

To show the presence of, or prove the identity of iodol, the following two reactions may be used—aside of the fact that strong heat causes the evolution of violet vapors of iodine: 1. On adding nitric acid to an alcoholic solution of iodol, heated on a water-bath, a deep ruby-red color is produced, which is destroyed by sulphurous acid or hyposulphite (thiosulphate) of sodium (and is therefore due to a separation of iodine). And 2. Iodol dissolves with a bright-green color in concentrated sulphuric acid, this color afterwards passing into brownish. On heating this sulphuric acid solution at 212° F., copious vapors of iodine are evolved, and if it be poured into water, iodol of a reddish-brown color is precipitated.

Iodol is employed either in form of fine powder, dusted or sprinkled on, or made into a salve with petroleum ointment, or in form of solution as follows:

Iodol.....	.....2 to 3 parts.
Alcohol.....	35 "
Glycerin, to make...	100 "

Iodol contains 88.9 per cent of iodine, while iodoform contains 96.6 per cent. Now, though the former contains somewhat less iodine than the latter, yet, for the present at least, the former commands a higher price,* chiefly because its process of manufacture and the crude materials required for the latter are much more expensive than in the case of iodoform.

Iodol was discovered by Drs. G. Ciamician and P. Silber, of Rome, and is now manufactured on a considerable scale (which will probably be much increased) by Kalle & Co. (aniline works) of Bibrich on the Rhine.

As a supplement to the above, we give an abstract of a paper by the discoverers of iodol (in the *Ber. d. Deutsch. Chem. Ges.*, 1885, 1766) in which they give a modified method of producing iodol, namely: by acting

* A small invoice recently on the market sold for $2.25 per ounce.

upon pyrrol with iodine in presence o an alkali.

2 Gm. of pyrrol are dissolved in water containing a little potassa, and a solution of 30 Gm. of iodine in iodide of potassium gradually added with frequent agitation. The first drops of the iodine solution produce already a very dark color, and gradually there is formed a dirty bluish-green precipitate. When the whole of the iodine solution has been added, the liquid over the precipitate has a pea-green color. The bluish-green precipitate is collected on a filter, washed with water, then dissolved in hot alcohol, and this solution boiled for some time with animal charcoal. The yellowish-brown filtrate, when treated with water, deposits a voluminous, flocculent, yellowish precipitate, which is separated and recrystallized from hot, diluted alcohol. The product appears in light yellow microscopic needles.

The reaction, without taking into consideration the iodide of potassium used to dissolve the iodine, is as follows:

C_4H_4NH + 8I + 4KOH = C_4I_4NH + 4KI + 4 H_2O

pyrrol — iodine — potassa — tetra-iodo-pyrrol, or iodol. — iodide potassium. — water.

Mizu Ame or Japanese Maltine.

Dr. J. C. Berry, of Okayama, gives the following account of the manufacture of mizu ame in Central Japan:

1. *Malt* (*moyashi*). Made by putting barley into a pail with a perforated bottom, and then moistening with water for two weeks, by which time (varying with the weather) the barley germinates. Spread and dry, rub off the sprouts, winnow and grind, when it is ready for use.

2. Of *mochi-gome* (the very glutinous rice from which the *moche* is made) 1 *to*,* cook the rice by steaming in a wooden box until moderately soft. Remove to a pail, and add: malt, 450 *momme*,† water, 5 *sho*.* Then, with the hands, thoroughly mix the whole, squeezing and crushing the rice until it assumes a hard, jelly-like consistence; then allow it to remain for twelve hours, during which time stir three times. If the weather is very cold, it is meanwhile covered with straw-mats; if very warm, it is kept in a cool place. Remove, and place in hempen bags, put into a strong box, and press out the liquid with strong pressure. Lastly, evaporate to a proper consistence over a slow fire.—*Sei i Kwai*, Nov., 1885.

NEW SPECIFIC GRAVITY AND SUBSTITUTION BALANCE.

On page 227 of our last volume we described an improved form of Mohr's or Westphal's specific gravity balance, and made reference to several previous articles which had appeared in our journal referring to the same subject. Having, however, learned of a still better apparatus, we have taken pains to procure one, and herewith present an illustration and description to our readers. It is made by L. Reimann, of Berlin, who has had a large experience in the manufacture of balances and similar instruments of precision, and who designed it with a special view to eliminate the known sources of error inherent to the other forms, particularly that in which rider-weights are used, which are to be hung in notches on the beam. It has been ascertained that the last-named form of specific gravity balance frequently causes errors, either from the fact that the notches do not always correspond with absolute exactness to the weights which are supposed to be adjusted for them, or because the notches, as well as the sharp edges of the rider-weights, become blunted, or because the latter are apt to be mistaken one for another, or from other causes. The only true way of weighing is that by means of accurate weights. And in accordance with this principle, this balance has been constructed.

The several parts of the balance, all of which are kept separate in a neat box, are put together as shown in Fig. 1.

Fig. 1 represents the balance when used for specific gravity determinations; Fig. 2, when used for ordinary weighings.

Reimann's specific gravity and substitution balance.

Upon a solid iron foot is screwed a brass rod over which fits a hollow brass tube provided with a set-screw by which it may be adjusted in height. The hollow tube carries at its upper extremity the vernier and is provided with a socket for receiving the knife-edges of the scale-beam, while below the socket are situated two curved stirrups, the object of which is to prevent the scale-beam from turning too far either way. The scale-beam has on one of its arms a solid square piece of brass permanently fastened to it as a partial counterpoise for the pans, etc., to be suspended from the other side. The fine adjustment is obtained by a screw at the end of the arm. Two cylinders of glass accompany the apparatus, for which a special place is provided in the base, the level of which may be adjusted by a screw. [In Fig. 1, only the larger cylinder is shown. The smaller one is intended for taking the specific gravity of small volumes of liquids.] Two different sizes of scale-pans accompany the apparatus, as will be seen in Fig. 2.

Of these, only the upper one is used when the specific gravity of a substance is to be taken. From the bottom of the scale-pan is suspended the thermometer-float—of which there are two sizes—one of them displacing exactly 1 gramme of water at 15° C. (59° F.), while the larger one displaces 10 grammes. Each float consists of a closed glass cylinder (containing an accurate thermometer) and a fine platinum wire, to the end of which a conical piece of brass with eye is attached which is hung in the hook of the scale-pan. When either of the two thermometer-floats is suspended from the scale-pan, the index of the scale-beam is made to point exactly to the zero-mark of the vernier by adjusting the screw at the end of the scale-beam. It is to be remarked that the twisted end of the platinum wire, where it is connected with the float, must always be completely immersed in the liquid the specific gravity of which is to be taken. In order to ascertain, once for all, the exact point to which this immersion must extend, proceed as follows:

Having first adjusted the balance to the zero-point, as directed above, introduce the float into a cylinder containing distilled water at 15° C. (59° F.), as shown in the cut. Then, if the 10 gramme float has been used, put an accurate 10 gramme weight on the scale-pan, and bring the index, if necessary, to the zero-point by slightly raising or lowering the upright hollow rod supporting the scale-beam, whereby the platinum wire of the float will be more or less immersed. When perfect equilibrium has been established, note the exact point to which the wire has been immersed, and, in every subsequent determination, see that the immersion is exactly to this point. If the 1 gramme float was used, of course only 1 gramme weight is to be put on the scale-pan.

Subsequently then, when taking the specific gravity of a liquid, proceed thus: If there is enough liquid (about 1½ to 2 oz.), use the larger cylinder shown in Fig. 1, and the 10 gramme float. Allow the latter to sink to the proper mark on the platinum wire, and then place on the scale-pan the requisite amount of accurate metric weights to establish equilibrium. Supposing 8.923 grammes have thus been required; then we merely divide by 10, and obtain 0.8923, which is the specific gravity of the liquid. When using the 10 Gm. float, the specific gravity can thus be determined to 4 decimals, since the balance is sensible to 1 milligramme. On using the 1 Gm. float, dividing by 10 is not necessary, the superimposed weights directly indicating the specific gravity. Supposing it had required 0.912 Gm. to restore equilibrium, then the specific gravity of the liquid would be 0.912; but in this case it would be determined only to 3 decimals. The 1 Gm. float is intended to be used when only a small quantity of liquid, about 5 Gm., is available.

The balance may also be used for ordinary weighings of small quantities by hanging on the small scale-pan another larger one, as shown in Fig. 2.

This is exactly 11 grammes lighter than either of the floats; hence, to establish equilibrium, 11 Gm. in weights are placed on the upper scale-pan.

* 1 *to* = 10 *sho* = 1.097 cubic inches.
† 120 momme = 1 lb. avoirdupois.

The body or substance to be weighed is now placed on the lower pan, and enough weights removed from the upper to produce equilibrium. The amount of weights removed represents the weight of the body on the lower pan.

We have already used our balance for the determination of the specific gravities of various fluids, and find it exceedingly reliable, compact, and convenient. In our judgment, it is the best kind at present available, and, considering the great amount of labor and time bestowed on some of its parts, it is not expensive, and could be sold here, with duty and all expenses and commission, etc., added, for about 18 dollars. It may be obtained through dealers in chemical apparatus.

DROP-FUNNELS.

IT is often necessary to arrange funnels in such a manner that their elongated neck dips into a liquid. At the same time it may be desirable to admit fresh liquid only in drops, but the rate of flow cannot well be either seen or controlled in the common long-necked funnels, since their bore does not permit drops to separate. This drawback is removed by employing the funnel shown here, which is designed by Dr. J. Walter. It needs no detailed explanation. The inner neck is so shaped that drops may be allowed to pass at any desired rate.

A similar arrangement is shown adjoining. This serves as a funnel for introducing acids into a gas-generating vessel. It is secured in the latter by means of a rubber cork (see the dotted lines *b*). The acid may be allowed to pass in a stream or in drops, when it will descend to the bottom of the inner tube, then rise in the space c, and enter the generating vessels through the lateral holes *n n*. The generated gas passes through the upper holes, *d d*, into the space *e e*, and finally finds its exit by the tube *v.—Zeitsch. f. Anal. Chem.*, 1885, 428.

Chinojodin.

ABOUT a year ago, we received from the "Chemische Fabrik auf Aktien (vormals E. Schering)," of Berlin, a sample of a new organic compound under the name "chinojodin." This substance was announced as one of the most prompt and energetic antiseptics so far discovered, and information regarding its chemical nature and mode of preparation was promised to be shortly published.

We have had several inquiries regarding the substance, to satisfy which we publish the following note regarding its properties, communicated by Jos. Kleiber to the *Pharm. Post.*

Chinojodin is a yellow, crystalline powder containing iodine, of a mild, aromatic odor.

Prof. Binz, of Bonn, who has first examined its properties, has made the following private [?] report in reference to it:

It is a good antiseptic.

When sprinkled upon an indolent discolored ulcer on the human skin, it causes the painless formation of an eschar, with healthy granulations.

On introducing 0.5 Gm. (ab. 8 grains) of the substance into the stomach of a cat weighing two lbs., together with a little water, the animal heat was raised, contrary to expectation, from 39° C. (102.2° F.) to 41.4° C. (106.5° F.) probably on account of a temporary gastritis that was produced. At the same time, it produced deep sleep. On the second day succeeding, however, the animal had completely recovered.

The substance resembles iodoform in its effects (but Prof. Binz does not give a conclusive opinion in this direction, since further experiments are required to prove this).

In psoriasis and herpes maculatus it produced most excellent results.

Prof. Kehrer, of Heidelberg, and Dr. M. Berthold, of Königsberg, pronounce it an excellent antiseptic in diseases of the uterus.

It has been used, so far, in the following forms:

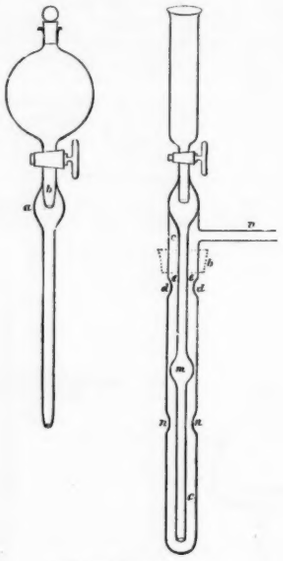
a. In fine powder, either by itself alone or mixed with talc.

b. In form of ointment, with fat or vaseline, in the proportion of 1 to 3, or 1 to 5.

c. In fine powder, suspended in collodion, which should be done at the time of use.

d. Made into a thin paste with water.

Regarding its internal application, nothing is known so far.



Walter's drop-funnels.

Goldstein's apparatus for washing liquids.

Contribution to the History of Cloves.

PROF. FLÜCKIGER has shown (*Pharmakognosie*, 2d ed., 1883, p. 762) that cloves were known in Western Europe as long ago as the VI. century, though they may not have been a common article at that time. In spite of the proof there adduced and the account of the mediæval commerce in cloves given by Heyd (*Geschichte des Levantehandels im Mittelalter*, II., 593–597) A. de Candolle appears to have overlooked these authorities altogether (in his work *Origine des Plantes cultivées*, 1883, p. 129), since he asserts that cloves were unknown in Europe previous to the discovery of the Moluccas by the Portuguese.

If it required another proof to show that De Candolle's statement is wrong, this proof has been recently furnished. In a stone-coffin discovered on Dec. 10th, 1884, in the burial-place of the ancient Argentovaria (now Horburg, near Colmar in Elsass), and which is believed to belong to the VI. century, a small, handsome golden box was found which contained *two cloves* and a friable, amorphous, white mass. Prof. Flückiger succeeded in obtaining the contents, and identified the cloves completely. The nature of the friable mass, which had been supposed to be incense, and gave out an aromatic odor somewhat resembling storax when burned, could not be determined.*

APPARATUS FOR WASHING LIQUIDS NOT MISCIBLE WITH WATER.

WHEN a liquid not miscible with water is to be washed with water [or when an aqueous solution is to be washed out by a volatile liquid], the apparatus contrived by M. Goldstein may be used. In principle, it belongs to the same class of apparatus as that of C. Neumann, described elsewhere in this number, except that it does not work automatically like the latter, and necessitates fresh portions of liquid every time.

The arrangement of the apparatus is sufficiently intelligible from the cut. In the case of liquids which are lighter than water, the position of the tubes should be as shown in the illustration. Water enters in the direction of the arrow, and should be allowed to strike the lighter liquid in the bottle with some force, so as to stir it up. When enough water has been added, it may be withdrawn through the siphon tube, by attaching a piece of rubber hose to the outer limb.

If liquids heavier than water are to be washed, the tube through which the water is admitted must reach nearly to the bottom of the bottle, while the other tube must be raised into the upper layer.

[NOTE OF ED. AM. DRUGG.—The suggestion to use the apparatus for washing watery solutions with volatile liquids—the very reverse of that for which the apparatus was origin all constructed—comes from us. In this case, the volatile liquid, if lighter than water, must be made to enter at the bottom of the aqueous solution; and, if heavier than water, on top. The siphon tube is to be adjusted so as to withdraw the volatile menstruum used for washing.]

Vaseline in Confectionery.—The French Government has issued strict orders prohibiting the use of vaseline or other petroleum ointments as an admixture to confectionery. It appears this has become quite customary, the object being to prevent certain articles from becoming rancid too soon. The government takes the ground that the admixture may merely hide the fact that rancidity has already set in; and that mineral fats do not belong among the substances that have a nutritive power.—After *Arch. de Pharm.*, 1886, 14.

Dr. Pierce's Favorite Prescription.

ACCORDING to Hager this contains: Savin, 10 grammes; agaric, 5 grammes; cinnamon, 5 grammes; Peruvian bark, 10 grammes. Make a decoction of 200 grammes, and add: Gum arabic, 10 grammes; sugar, 5 grammes; tinct. digitalis, 2 grammes; tinct. opii, 2 grammes; oil anise, 8 gtts. Dissolve the gum, sugar, and oil in 45 grammes of alcohol.

* After reprint from Journ. de Ph. d'Als. Lorr., 1885, received from Prof. Flueckiger.

CENTRIFUGAL STRAINERS.

THE principle of the centrifugal dryer has lately been again recommended and utilized for operations on the small scale in the chemical and pharmaceutical laboratory. Some of its applications are here described and illustrated.

1. *For Making Infusions or Decoctions.*—For this purpose, the centrifugal strainer devised by Bombelon (of Neuenahr) may be employed.

S is a circular sieve, resting upon an easily-turning axis *F*, around the lower portion of which a coil of catgut is wound, one end of which is fastened to the axis, while the other passes through a slit in the lower case, and is attached to the handle *Z*. *A* is a tinned-iron mantle surrounding the sieve, and serves to catch the ejected fluid which runs off, through the spout *B*, into a graduate or other vessel placed below. On pulling the the handle *Z*, the axis bearing the sieve is put in a rotary motion, which becomes reversed by every pull at the handle. A special mechanism, not shown in the cut, winds the catgut or cord upon the axis, when the apparatus is at rest. If a decoction or infusion is to be strained, it is simply poured into the sieve, and, by pulling the handle *Z* eight or ten times, all the available liquid will have been forced out. This method has a special advantage in the case of drugs rich in pectin or mucilage, as these inert constituents are not pressed out with the liquid. If complete exhaustion is desired, this may be accomplished by remoistening the drug once or more frequently, if necessary, and repeating the operation.

2. *For Separating Filtrates in Chemical Analysis.*—The following apparatus is described by Alexander Watt, in the *Chemical News* of Nov. 6th, 1885.

The late Dr. Mohr, of Boon, advocated the use of a centrifugal machine as a means of rapidly drying crystals and crystalline precipitates; but, although they are admirably adapted for that purpose, centrifugal machines are seldom seen in our chemical laboratories.

The neglect of this valuable addition to our laboratory apparatus it probably owing to the inconvenience involved in driving the machine at a high speed by means of the ordinary hand-driving gear, especially when the rotation has to be maintained for a considerable length of time.

It occurred to me, therefore, that, by attaching the drum or basket of the machine (or the rotating table of Mohr's apparatus) directly to the spindle of an electro-motor, the difficulty of driving might be got over, and at the same time a combination of great efficiency would result, as the electro-motor, like the centrifugal machine, is most efficient when run at a high speed.

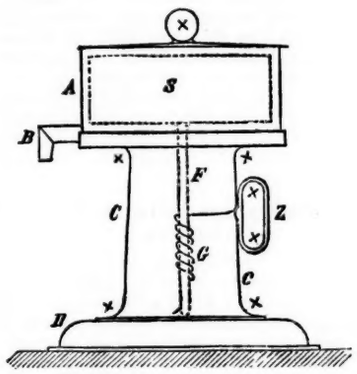
The apparatus shown in the sketch consists essentially of a perforated basket, *A*, which is slipped on to a cone attached to the spindle *S* of an electro-motor, and held in position by the nut *D*. The casing *B*, with its removable cover *C*, serves to receive the liquid driven out of the substance being dried. A flat form of the ordinary Siemens *H* armature *E* revolves between the poles *P* of the electro-magnets *M*, which are connected by means of the base plate *I*. The brass cross-bar *G* carries the top-bearing of the spindle *S*, and prevents the magnet poles from being drawn together.

From four to six cells of a bichromate battery, or Faure secondary battery, furnish sufficient power to run the machine at a high speed. An apparatus, with a copper basket four inches in diameter, has been found extremely useful in the laboratory for drying such substances as granulated sulphate of copper, and sulphate of iron and ammonia, but more especially for drying sugar, which, when crystallized in very small crystals, cannot be readily separated from the syrupy mother-liquor by any of the usual laboratory appliances.

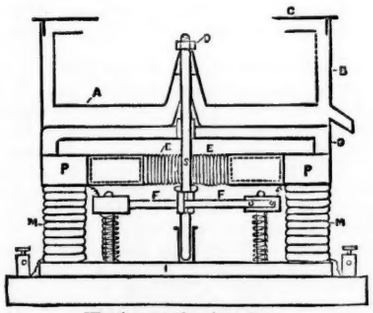
For drying substances which act on copper, the basket may be made of platinum or ebonite; in the latter case, owing to the increased size of the perforations, it may be necessary to line the basket with platinum wire gauze or perforated parchment paper.

Reddening of Carbolic Acid.

THE old question how carbolic acid acquires a red color has again been examined, this time by Mr. A. Kremel, of Vienna, who has ascertained that it is produced by contact of the carbolic acid with many metals and metallic oxides, in presence or in absence of ammonia, and that in all cases there appears to be formed one and the same organic body, which seems to be combined with the metal in question, and which is soluble in carbolic acid with red color, and in sulphuric acid with blue color.



Bombelon's centrifugal strainer.



Watt's centrifugal strainer.

The author employed for his experiments pure phenol, which had remained colorless while in his possession for about two years. Portions of 25 Gm., each contained in flasks were brought in contact with the following metals in form of powder: silver, lead, copper, iron, tin, and zinc. The flasks were closed and exposed to a temperature of about 122° F. The contents of the flask containing copper turned red first; next followed those containing lead, silver, and zinc, and after three or four days these were all purple-red. The samples containing iron and tin, however, remained colorless. Another series of experiments was next made, in which 5 drops of water of ammonia were added to each flask. The result was that an intense red color appeared in the samples containing copper, lead, silver, zinc, *and* iron, which color appeared in the former metals much more rapidly than in absence of ammonia. The sample containing tin remained even now colorless. In a new series of experiments, the oxides corresponding to the above metals were added without ammonia (except in the case of oxide of silver, when this was added). It required only a few hours to produce reddening, except with oxide of tin which had no effect. With oxide of lead, the color was lightest.

Every sample that had thus been reddened, was subsequently filtered to separate the metals or metallic oxides, and the filtrate dissolved in water. In every case, a dark-red precipitate was produced. After again filtering, the new filtrates were rose-red, except the three samples treated with lead which were colorless. Upon the addition of ammonia, the filtrate from the sample treated with copper acquired a handsome blue color. But in no case could the corresponding metals be identified in the filtrates, even when the most careful search was made. On incinerating the filters, however, together with their contents, the pressence of the several metals could be detected, excepting silver, which could not be found in the corresponding ash.

Every one of these precipitates was also perfectly soluble, with a red color, in carbolic acid, and partly also in ether and alcohol. The residue left after the evaporation of an alcoholic solution was, in every case, soluble in concentrated sulphuric acid with an intense blue color.

The author concludes his paper by stating that carbolic acid solution prepared from a reddened acid should always be filtered. He also recommends that colorless acid should be kept in glass free from lead, or in heavily tinned iron vessels, soldered with pure tin.—After *Pharm. Post*, 1886, No. 1.

The French Process of Making Crystallized Fruits.

U. S. CONSUL FRANK H. MASON, of Marseilles, sends the following report to the State Department.

The fruit is first carefully assorted in respect to size and uniform degrees of ripeness.

Pears, pineapples, and quinces are pared, citrons are cut into quarters and soaked a month in sea-water, and the "pits" of apricots, cherries, and peaches are carefully removed.

Even this preparatory process requires a certain degree of skill, since the stone must be removed with as little injury as possible to the form and solidity of the fruit. This work is done mainly by women, who earn thereby fifty cents per day.

Thus prepared, the fruit is immersed in boiling water, which quickly penetrates the pulp, dissolving and diluting the juice, which is thereby nearly eliminated, when the fruit is subsequently taken from the water and drained, leaving only the solid portion of the pulp intact.

This process of "blanching" must also be done with exact nicety, the period of immersion in the hot water being determined by the size and ripeness of the fruit. If immersed too long, the pulp is either overcooked or is left too dry and woody. If taken out too soon, the juices left in the pulp prevent perfect absorption of the sugar afterwards, and, by eventually causing fermentation, destroy the value of the product. In this, as in other stages of the process, the only guide is experience. A skilful workman can tell by the color and appearance of the pulp when it is properly "blanched," and this knowledge invariably commands employment and liberal compensation.

After being thus scalded, some fruits, apricots, for example, are again assorted into two or three classes, according

to the degree of softness that has been produced, for the reason that if kept together they would take up the sugar differently, some losing their form entirely, while others would remain sufficiently impregnated. For these different grades sugar-syrups of different degrees of density are required, the softer the fruit the stronger the syrup required for its preservation.

For the same reason each of the different varieties of fruit requires a syrup of corresponding strength.

Pears, citrons, and pine-apples, which remain hard and firm, take best a syrup having a density of from 18° to 25°, while apricots, plums, and figs are treated with syrups which gauge from 30° to 42° by the areometer.

The requisite syrup having been prepared by dissolving the sugar in pure water, the fruit is immersed in it and left at rest for a certain period in large earthenware pans, glazed inside, and having a capacity of about eight gallons.

The syrup penetrates the pulp, and gradually withdraws and replaces the remaining fruity juice, which, as it exudes and mingles with the transparent liquid, produces a certain filmy or clouded appearance, which marks the commencement of fermentation. When this has reached a certain stage, the vessel containing the syrup and fruit is placed over the fire and heated to 212° F. This corrects the fermentation and raises all impurities to the surface, whence, if necessary, they can be removed by skimming. If the syrup is of proper density, this process of impregnating the fruit with sugar will be complete in about six weeks, during which time it is usually necessary to perform this heating process, as above described, three times.

The impregnation of the fruit with sugar being thus complete, it is taken out, washed in pure water to remove the flaky particles that adhere, and is then submitted to one or two finishing processes, as follows:

If the fruit is to be "glacéd," that is, covered with an ice or transparent coating, it is dipped in a thick, viscid syrup of sugar and left to dry and harden rapidly in the open air. If it is to be "crystallized" it is dipped into the same syrup, but is then cooled and dried slowly in a kiln or chamber warmed to a temperature of 90° Fahrenheit.

This slow cooling causes the thick syrup with which the fruit is covered to crystallize and assume the usual granulated appearance. The work is now finished. If properly done, the fruit thus preserved will bear transportation to any climate and will keep, firm and unchanged, for years. It is packed in light wooden or card-board boxes and may be shipped in cases containing several hundred pounds each.

Purification of Arsenical Zinc.

In order to prepare metallic zinc free from arsenic, for use in analytical operations, it is customary to heat it with nitrate of potassium. This treatment, however, though effective, is quite tedious, and furnishes a metal which is but slowly attacked by acid, though this drawback may be removed by repeatedly granulating it.

Another process has recently been described in the *Chem. Centralblatt*, which is as follows.

Melt the zinc and add to it 1 or 1½ per cent of anhydrous chloride of magnesium. On stirring, white vapors of chloride of zinc are given off, and carry the arsenic along with them. The metal is then poured into cold water and yields granulations which are easily attacked by sulphuric acid and entirely free from arsenic. The same method is said to answer for the purpose of removing antimony from zinc.

To Cut Thick Glass-Tubes.

A simple method of cutting thick glass-tubes, even of large diameter, is published in *La Nature*.

Wind an iron wire of half a millimeter in thickness around the glass-tube, and connect it with a galvanic battery of sufficient power to raise the wire to a red heat. Then put a few drops of water near the wire upon the glass. The latter will then crack in the direction of the wire, and the thicker the glass, the more exact will be the fracture.—*Zeitsch. f. anal. Chem.*

A Simple Method of Arranging Several Liquids of Different Density in Layers.

Though the method below given is not new, it will, nevertheless, be a useful hint to some of our readers. It is given by A. Handl in the *Zeitschr. f. Anal. Chem.*

The specifically heavier liquid is made to pass to the bottom of the lighter liquid by means of a siphon drawn out to a fine point, and the flow of which can be controlled by means of a pinch-cock attached to a rubber-tube forming part of the inner leg of the siphon. By very carefully regulating the pinch-cock, the heavier liquid may be allowed to flow out under the lighter, lifting the latter without mingling with it.

The Therapeutic Action of Nitrite of Sodium.

Sodium nitrite, whose therapeutic importance we have already several times referred to, has been employed by Dr. Ludwig Schweinburg (*Centralblatt für die gesammte Therapie*, Aug., 1885) with success in moderately severe cases of angina pectoris. He has also employed with favorable results in a case of hysteric asthma, and in one of dyspeptic asthma. It proved useless in one case of cardialgia depending upon an insufficient aortic valve, and in two cases of intercostal neuralgia. In one of trigeminal neuralgia it produced marked improvement. The method of employment was to dissolve ½ gramme (7½ grains) of sodium nitrite in 150 grammes (6½ ounces) of water, of which three to four tablespoonfuls could be taken daily.—*Therap. Gazette.*

To Render Corks Ether-Tight.

C. Neumann has recently. (*Ber. D. Chem. G.*, 1885, 3,061) pointed out that corks may be rendered ether-tight by chrome-gelatin. It is well known that ordinary corks very soon become porous to the vapors of ether, benzol, and other volatile liquids [which gradually carry off every trace of moisture]. By coating the corks with a solution prepared from 4 parts of gelatin, 52 parts of boiling water, and 1 part of ammonium dichromate (added to the *filtered* gelatin solution), and then exposing them for a few days to sun-light, absolutely tight stoppers will be obtained. The apparatus may be put together with unprepared, sound corks, and the exposed portions of the latter afterwards coated and exposed to sun-light. It is well known that gelatin, in presence of bichromates, is also rendered insoluble in water by exposure to light.

[Note of Ed. Am. Drugg.—We have used a hot mixture of gelatin, water, and tannin, as well as chrome-gelatin, for several years past, for the purpose of sealing bottles containing chloroform and other volatile liquids, with good success.]

The Estimation of Sulphurous Acid, Free or Combined.

In the estimation or assay of sulphurous acid by means of volumetric solution of iodine, it is necessary to dilute the former—whether the solution of the acid or that of a sulphite—so that it shall not contain more than 0.05 per cent of SO_2. In order to obtain accurate results, it has been found that water previously deprived of air should be used for dilution. [In the process of assay of Acidum Sulphurosum given in the U. S. Pharm., common water is ordered as diluent, as the assay is not required to be absolutely exact.] In order to avoid this tedious operation, W. B. Giles and A. Shearer recommend the following method.

Weigh the substance, if a solid, upon a small watch-glass, and immerse the latter in an excess of normal $\frac{1}{10}$ volumetric solution of iodine. Stir well, and in the case of difficultly soluble sulphites wait some time to give the iodine a chance to decompose the substance; then determine the excess of iodine with $\frac{1}{10}$ volumetric solution of hyposulphite. Liquids are weighed in a small tube closed by fusion, which is afterwards broken under the iodine solution.—*Journ. Soc. Ch. Ind.*, and *Z. anal. Chem.*

The Analysis of Extract of Beef and Beef Tea.

In a paper on this subject, published in *The Analyst* (1885, Dec.), Dr. Otto Hehner gives a process which he considers more convenient than others heretofore proposed. He says:

"I have lately had, on several occasions, to examine specimens of beef tea, with a view to decide whether they were made from meat alone or unduly charged with gelatinous substances, and in order to be able to arrive at the desired result, I have made a number of analyses of well-known preparations, which, partial though they be, may be of some utility to other analysts. I do not pretend to say one word about the much-debated question of the dietetic value of these preparations; the fact that they are largely consumed by invalids and form an important branch of industry will, I trust, be taken as sufficient justification for the publication of my figures. I deviated from the ordinary course of examination in but one particular. For the estimation of the "matters precipitable by alcohol," I dissolved 2 grammes of the substance in 25 C.c. of water, and added 50 C.c. of strong methylated spirit, allowed the precipitate to settle over night, poured and drained off the clear liquor next morning, and, without washing, dissolved it in a little hot water, evaporated in a weighed vessel, and dried at 100. I held this way of proceeding to be more convenient than the extraction with 80% alcohol, as usually practised with extracts of meat. In an experiment with Nelson's gelatin, dried at 100°, I found that thus no less than 93.19% were precipitated, whilst the Liebig Company's Meat Extract gave but a faint precipitate, amounting to 5.1%, my aim being to precipitate as much as possible of the gelatin and as little as possible of meat extractives and mineral salts. The phosphoric acid was determined by the prooess described by me some years ago, the phospho-molybdate precipitate being dissolved in ammonia, and the solution evaporated, dried at 100°, and the residue divided at 28.5.

Liebig's Extract.

Moisture (at 100°)	18.70
Nitrogen*	7.94
Alcohol precipitate	5.16
Ash	23.38
Phosphoric Acid	6.07

And the dry material of Liebig's Extract contained:

Nitrogen*	9.7
Alcohol precipitate	6.3
Ash	28.7
Phosphoric Acid	7.4
Phosphoric Acid in the Ash	25.9

*Dr. Hehner does not give the amount of dry, organic, nitrogenous constituents direct, but only the nitrogen obtained therefrom.

APPARATUS FOR CONTINUOUS EXRACTION OF SOLUTIONS.

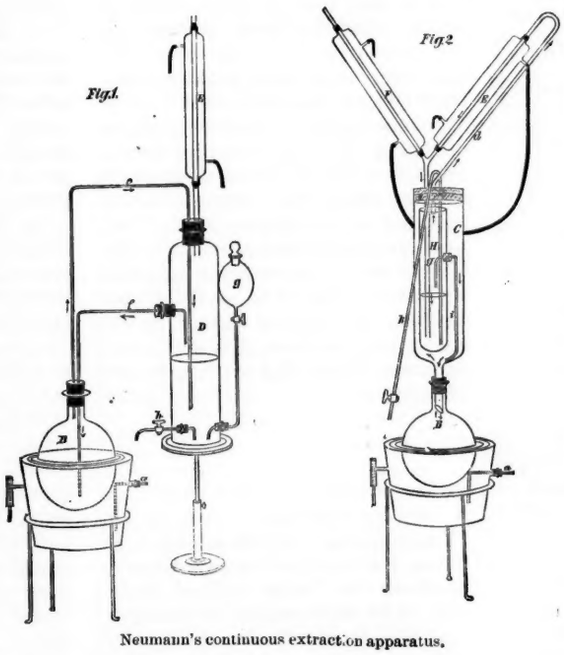
ONLY one form of apparatus has so far been proposed for the continuous extraction of *liquids* or *solutions* by means of volatile solvents. This was designed by H. Schwarz and described in the *Berliner Berichte*, 1884, 369. It has the disadvantage, however, of being very fragile. G. Neumann has now constructed an improved apparatus, the utility of which will at once be appreciated by those who have much occasion to shake alkaloids or other proximate principals out of aqueous solutions by ether or other volatile solvents.

The flask *B* (Fig. 1) containing the appropriate solvent (for instance, ether) is placed into a water-bath of constant level, heated by steam (through *a*). The ether vapor passes through the tube *c*, reaching to near the bottom of the cylinder *D*, into the solution to be extracted. The ethereal solution or extract collects on top of the latter and any vapor of ether that may attempt to escape is condensed by the upright condenser *E*. As soon as the ethereal solution has reached the highest point of the glass tube *f*, the latter acts as a siphon and transfers most of the ethereal solutions into the flask whence the solvent is again volatilized as before. The separating funnel *g* serves for adding a new portion of liquid to be extracted. And the exhausted solution may be drawn off through the stopcock *h*.

Sometimes it is desirable to extract a liquid with *hot* ether or other volatile liquid. In this case a second form of apparatus designed by the same author may be used.

The flask *B* (Fig. 2) is heated as in the former case. The ether vapor enters the wide cylinder *C*, passes up the tube *d*, is condensed in the condenser *E*, and any vapor still remaining is finally condensed in *F*. The condensed ether collects in the tube *g*, until its height is such that by its own weight it is pressed through the column of the liquid to be extracted, filling its lower end.

The ethereal solution collects on the surface of the latter in *H*, and when it attains the height of the tubulure it flows off through the tube *i* into the flask. The hot ether-vapor surrounds the inner cylinder containing the liquid to be extracted, and heats the latter sufficiently to render its constituents more soluble in the ether. The exhausted solution may be drawn off through the siphon *k*, and new liquid is best introduced through the condenser *F*.—*Ber. d. Deutsch. Chem. Ges.*, 1885, 3,061.



Neumann's continuous extraction apparatus.

Adulterated Chlorate of Potassium.

DR. F. DRONKE reports having recently found some chlorate of potassium contaminated with the sodium salt. The external appearance, crystalline form, and usual reactions were apparently normal and did not excite any suspicion. On the other hand, it was noticed that the salt imparted a deep yellow color to the flame, and was soluble in about 8 parts of water. A saturated solution in water, when mixed with one of acetate of potassium, at once produced a characteristic precipitate of chlorate of potassium. *Chem. Zeit.*

How Balances may be Affected by Errors.

ASIDE from ordinary causes, familiar to every person who has handled good balances frequently, and which affect their accuracy, there arise occasionally some sources of error, which are not suspected until the aberration of the balance is noticed. We will not speak here of such conditions, as, for instance, if one scale-pan, or one side of the beam is illuminated by sun-light, while the other is in the shade; or if a gas light or other source of heat is situated near one side of the balance, or when the operator allows his breath to waft over one side of the balance, etc., etc. In the *Zeitsch. f. Instrumentenkunde* (5; 161) R. Henning mentions one source of error which we have ourselves studied years ago, and which is not as generally known as it ought to be, namely the electrification of the glass-case by friction, and the consequent attraction of one of the scale-pans. As an instance, this author mentions the fact that a balance of 1,000 Gm. capacity, after one side of its case had been rubbed with a linen rag, showed an increase of weight on this side of 600 milligrammes; after friction with a silken rag it showed an increase of 250 Gm., and with a woollen rag, an increase of 70 Gm. Even very gentle friction, such, for instance, as was produced by a gentle sliding to and fro of the box of weights upon the cover of the case, altered the zero-point of the scale by 0.2 to 0.6 degrees. The effect of the electric charge lasts but a short time, but is so much the more annoying as its true effect or value cannot be ascertained and deducted afterwards. As a protection against this error, the author recommends to place permanently under the upper part of the case a properly arranged grating of thin strips of tin-foil, which will at once absorb and neutralize any electric currents.

The same author also draws attention to some other well-known sources of error. One of them arises from placing upon one scale-pan a beaker or other vessel containing an evaporating liquid which causes a current of air and moisture to rise. An additional source of error is the presence in the balance or balance case of a substance able to absorb the vapor, such as chloride of calcium, placed there for absorbing moisture. This error is best eliminated by placing the beaker beside the scale-pan, immediately after weighing, and then determining the zero-point of the scale, while the beaker is still present and the current is still arising.

Auer's Incandescent Light.

IT is announced Dr. Auer Ritter von Welsbach, at present one of the assistants of Prof. Lieben of the University of Vienna, has invented a new system of illumination which bids fair to revolutionize the present wasteful methods.

The principle of the new method consists in this, that a certain solid body is made brightly luminous by being heated in the blue flame of a Bunsen burner modified for this purpose. The intensity of light produced is said to rival the Drummond light. For the present, the composition or construction of the solid body is a secret of the inventor. Dr. Heger, editor of the *Pharm. Post*, from which paper we take this notice, states that it consists of a mantle, probably charged with some gauze which is saturated with certain fixed oxides or salts, among them perhaps those of certain of the rarer earths, in the exploration of which the inventor is an authority. [In fact, it was he that recently discovered the fact that the supposed element didymium was a compound of two other elements, which he termed praseodym and neodym.] These oxides or salts are probably first ignited in the gauze, and thus acquire the property of glowing with a white "heat" or light. A prepared "mantle" of this description is said to cost only about one kreutzer (less than one cent), and to last one thousand hours, until it becomes so incrusted with dust that it loses its luminosity. The consumption of gas to keep the "mantle" ignited, is said to be only one-half of that required for an ordinary gas flame, and the light produced is said to equal, in intensity and color, the electric light. Dr. Auer has transferred his patent rights for all countries, except Austria and England, to an English company.

A Monument to Prof. Landerer.—It is proposed to erect a monument in Athens in commemoration of the late Professor Landerer, whose death we recorded some time ago, and who was an occasional contributor to this journal. A portrait of the doctor will be placed in the University building.

A Chemical Exhibition in Paris.—The Paris Chemical Society announces an exhibition of chemicals and chemical apparatus, both industrial and scientific, which is to be held under its auspices during the coming Easter week, at the conservatory of the Arts et Métiers. Foreign chemists, and more especially the English, are invited to participate, as exhibitors as well as visitors. During the exhibition a series of lectures will be delivered by Prof. Raoult, of Grenoble, with the aid of the unrivalled appliances and personnel of the Conservatory. Further particulars may be obtained from Prof. Oechsner de Coninck, 121 rue de Reimes, Paris. The genial professor is a son-in-law of the late Prof. Wurtz.—*Chem. and Drugg.*

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EDITORIAL.

THE practice of coloring pharmaceutical preparations, in general, does not by any means deserve to be condemned without exception, as is done by some theorists. On reflection, it will be found that there are several classes of preparations, in each of which the addition of coloring matter is practised for some good reason, while there are, of course, others in which no good reason can be shown. Let us review these classes briefly.

There are a number of preparations which are very properly or wisely colored *for safety*, so as to distinguish them from others by the eye. Take, for instance, Fowler's Solution. If it had been deemed sufficient to flavor it, the simple spirit of lavender might have been used, but then only one of our senses would have been appealed to. In taking the compound spirit, the eye has also been enlisted in identifying the preparation, and, in view of the powerful nature of the preparation, the object of the coloring is certainly a laudable one. Various other instances might be adduced, but one sample will suffice.

In the preceding case we mentioned the simple and the compound spirit of lavender. These two preparations would, if both were uncolored, be so much alike in appearance and even odor, that they would often be confounded. The presence of the coloring matter of red saunders, however, in the compound spirit, is a sufficient aid to distinguish them. We have here the motive of *convenience*. To this class belongs a large number of other preparations, in many of which it is doubtful whether the coloring matter was originally added by design or merely from accident, the ingredient yielding the color having, perhaps, been added for an entirely other purpose.

Finally, there is a class of preparations—larger perhaps than any of the others—in which the coloring matter is added for the purpose of *deception*. There are just as many degrees or grades of fraud in this class as there are in mercantile transactions in general. It is the object of a merchant to buy his goods at as low a price as possible and to sell them as high as he can. In order to accomplish this, he may represent his goods as better than they probably are [how many merchants do not?], and even may not hesitate to improve their appearance by various tricks and devices. Many of these are considered quite legitimate and permissible, while others must be characterized as dishonest and fraudulent practices.

It is true, most of the instances in which pharmaceutical preparations are colored for the purpose of deception belong to the more innocent class, there being no harm intended or done. What else could have been the intention of adding coloring matter to a weak solution of the cinchona alkaloids in colorless simple elixir, but to make the resulting mixture appear as if it had been made from the natural bark, containing some of the coloring matter of the latter? There is no need of extending this subject any further, as the reader may, without difficulty, recall instances of this kind in every branch of business.

IN our last issue we gave an account of some experiments made by Dr. Thomas J. Mays, of Philadelphia, with theine, the results of which led him to conclude that theine differed decidedly, in its physiological or therapeutic action, from caffeine. As he himself reports, he used Merck's theine, and he therefore naturally assumed that this alkaloid was actually made from tea, while caffeine was made from coffee. Now it is not at all surprising that any one should entertain such an opinion; in fact, it is not likely that any one, not specially posted on the subject, should know that commercial caffeine and theine are identical. The notion of their being prepared from tea and coffee respectively, and therefore being two separate products, is apparently strengthened by the fact that the price-lists of our own manufacturers (such as Powers & Weightman; Rosengarten & Sons, etc., etc.,) quote both caffeine and theine as separate articles—though it ought to strike one at once as curious that both are always quoted at the same price.

We have reason to believe that neither theine or caffeine is manufactured in this country, but that all that is sold is imported from abroad.

Now on looking over the price-lists of all prominent manufacturers of alkaloids and other chemicals on the continent, such as Trommsdorff, Schuchart, Gehe & Co., Kahlbaum, E. Schering, etc., we either find no mention of theine at all, or we find (as in Schuchart's price-list) the remark "Thein vide Caffein."

From the "*Handelsbericht* von Gehe & Co., September 1886," page 34, we translate the following passage:

"Although *caffeine* is in fair demand, and still remains at its comparatively low figure, an advance is to be expected because the proper crude material for its preparation, namely the *cheaper grades of tea*, have been for some time unobtainable, and the better ones are too expensive to be available for the manufacture at the present low prices of caffeine."

From this it appears that cheap tea-leaves are the principal source of caffeine, and therefore also of theine.

We are, moreover, assured by the house of E. Merck, of Darmstadt, that in view of the heretofore acknowledged and undoubted identity of caffeine and theine, manufacturers consider themselves at liberty to choose whichever crude material happens to be cheapest in the market. A lot of coffee damaged by water or otherwise would probably sometimes form a cheaper source than tea-leaves. Usually, however, the latter are used as source.

Now the question might be raised, why do the manufacturers contribute towards the perpetuation of the erroneous belief that caffeine and theine are separate products, by putting out one and the same substance under two different labels. To this question we have no authentic answer supplied to us by the manufacturers, but previous experience has taught us the correct answer. It is simply this. Certain positive facts often require a long time to become universally known and recognized. What an old practitioner has once learned to use in his young days, he generally continues to use up to his old age, and few of them care about reading up on remedies they have used for a long time and think they knew all about. Whatever, then, may be the advance made in chemical knowledge, manufacturers will often receive orders for articles that are obsolete, or which have acquired new and more correct names. If a manufacturer in Europe, therefore, receives an order for, say theine, from abroad, he may not consider it his business to first start a tedious correspondence trying to convince his customer that he ought to call for "caffeine," as this is the recognized chemical term for the alkaloid. He simply puts up the article and labels it theine. Indeed, properly speaking, it is nearly always theine what he supplies. But by common consent, theine is now dropped in chemical language. And in consequence of this perpetuation of obsolete names, many other persons are innocently led into error, who would undoubtedly have known how to avoid it had they not supposed that the name of a world-renowned firm, on the label of one of their products, is

sufficient guaranty for its genuineness.

Now caffeine or theine is not only obtainable from coffee or from tea-leaves, but also from guarana, as well as from maté (*Ilex paraguaiensis*) and from Kola nuts. Compare *Husemann's Pflanzenstoffe*, 2d ed., 1370, etc. *Neues Handwörterbuch der Chemie* v. Fehling, vol. III., 339.

Guaranine is, of course, a mere synonym of caffeine and is not, as such, quoted in the price-lists of manufacturers. We do not believe that any of them have used guarana as a starting-point, since it has been shown by Martins (in 1840) that guaranine is identical with caffeine. If, therefore, any manufacturer should receive an order for "guaranine," he will most likely put up caffeine and put a "guaranine" label on.

Finally we might ask, is it honest on the part of the manufacturers to play such tricks with labels? Strictly speaking, it is not, as will be conceded by everybody, though there are plausible arguments to be brought forward in favor of their defense.

Manufacturers and dealers can do a great deal of damage with labels by perpetuating obsolete and erroneous information, for the labels on the bottles and packages are probably the first thing the young pharmacist or the medical student will try and impress on his memory. And any false titles, misspelled names and other misleading information thus acquired are among the most difficult things to eradicate from his memory afterwards.

On the 15th of February a bill was introduced in Congress which proposed the changes in the tariff. The following are some of the items relating to chemicals and drugs.

	Present rate.	Proposed rate
Acids—Acetic, acetous, etc., per lb.	$0.10	$0.08
Castor beans, bush.	.50	.40
Castor oil, gallon	.80	.60
Iodine, resublimed, lb.	.40	.30
Licorice paste or roll, lb	.07½	.06
Strychnine, ounce	.50	.40
Refined borax, lb.	.05	.03
Pure boracic acid, lb.	.05	.03
Commercial boracic acid, lb.	.04	.03
Whiting and Paris white, dry, lb	.00½	.00¼
Acetate of lead, brown, lb.	.04	.03
Acetate of lead, white, lb.	.06	.04
White lead, dry, lb.	.03	.02½
White lead, ground or mixed lb.	.03	.02½
Litharge, lb.	.03	.02½
Orange, mineral and red lead, lb.	.03	.02½
Nitrate of lead, lb.	.03	.02½
Saltpetre, refined, lb.	.01½	.01
Soda, bicarbonate and saleratus, lb.	.01½	.01
Ochre and ochre earths, ground in oil, lb.	.01½	.01
Earth or clays, wrought, not otherwise provided for, ton	3.00	2.00
Kaolin, ton	3.00	2.00
Acid, tannic and tannin, lb.	1.00	.50
Santonine, lb.	3.00	2.00
Medicinal preparations, lb.	.50	.40

The *New York Daily Tribune*, commenting upon the "Morrison Tariff Bill" as it is called, stated that the aggregate of duties collected in 1885 upon this class of articles was only $602,326, and the value of such articles imported was only $2,669,353. Upon some of them the rate of duty was quite high, as on umber and umber earths, 70.44 per cent; on chiccory root, 57.68 per cent; on ochre and ochre earth, 58.28 per cent; on substitutes for coffee, 37.14 per cent, and on barytes manufactured, 41.70 per cent. The duties on other articles in this class were generally low, and yet the imports were small. But of glycerin 5,899,511 pounds were imported last year, valued at $317,775, and the duty collected was $117,990, or 37.13 per cent. Of crude nitrate of potash the imports amounted to 11,753,940 pounds valued at $341,222, and the duty collected was $117,539, or 34.45 per cent. The importation of many of these articles would affect very seriously branches of industry which have been established in this country, but it is difficult to determine what number of persons are engaged in such industries.

The attention of our readers is called to the vehicle for disguising the taste of quinine recommended by Mr. J. D. Aug. Hartz, of College Point, in a paper printed in this number. The preparation is not only a good vehicle for quinine, but also for many other disagreeably-tasting drugs, and deserves a thorough trial.

In the formulæ of emulsions communicated on page 36 of our February number, by Mr. E. A. Ranson, two evident errors have been made by the compositor which have been overlooked in reading the proofs. In formula 1 (Emulsion with Hypophosphite of Lime), the quantity of oil of bitter almonds should be 1½ fl. drachms instead of 1½ fl. ʒ. And on the third column of same page, in formula No. 3 (Pancreatized Cod-Liver Oil), the quantity of oil of bitter almonds should be 2 fl. drachms instead of 2 fl. ʒ. We are indebted to Mr. R. C. Davis for first drawing our attention to the wrong figures.

A law-suit was decided last May by the Court of Appeal of Montpellier, by which the doctrine was once more reaffirmed that a pharmacist is not a trader (*commerçant*). The judge said that "the profession of pharmacist practised by X., the defendant, cannot establish a presumption of his having-acted as a *commerçant* in the case at issue, for the pharmacist is not a trader, since he owes the remuneration received much more to the science acquired through studies enforced by law, than to the value, often insignificant, of the substances employed in preparing the remedies dispensed to the public.—*Chemist and Druggist.*

The average physician will frown upon and talk down all patent bitters, kidney and liver cures, cough syrups, and like nostrums, denouncing them as frauds and swindles, and if a druggist ventures to prepare any of these things himself, and put them on the market, he is looked upon and spoken of as no better than a rascal and a roober. Yet this same doctor will complacently write a ℞ for celerina, iodia, aletris cordial, bromidia, acid mannate, Fellow's syrup, Wheeler's elixir, oleo-chyle, papine, hydroleine, listerine, phosphopeptine, or any other of the many nostrums that are prepared for and advertised to the medical profession only, and of the composition of which he knows absolutely nothing. "O consistency, thou art a jewel," not found in the diadem of the average physician.—*Indiana Pharmacist.*

A writer in the *Bibliotheca Sacra* for October, 1885, says (authority not mentioned) that $125,000,000 were spent for opium in China during 1884; that over fifty millions of people are computed to be using this drug, and that the mortality was not less than 600,000 a year (probably from all causes of disease). Seven thousand tons of opium were sent during the year from India to China.

"T. C. M." (*Cincinnati Lancet-Clinic*) says: "Medicines were first given in capsules in 1838. The first capsules made were gelatin-coated and contained copaiba and cubebs. . . The double-jointed tube capsule ordinarily in use was the invention of Lehuby, on which there is no American patent. Racquin's capsules are prepared from gluten."

A writer in the *British Medical Journal* says that a pineapple should never be sliced with the knife used to peel it without cleaning the blade, as the rind contains an acrid substance which causes soreness of the mouth and lips. Salt is used in the West Indies as a local antidote to the poison.

The Sultan of Turkey is said to pay two German apothecaries $5,000 a year each, with board and rooms in the palace, and the services of several attendants.—*Nat. Drugg.*

Mr. Geo. H. Kaltener, of San Antonio, President of the Texas Pharmaceutical Association, writes us that the next annual meeting will be held at Dallas on the 27th of April, and for the three days following. Mr. G. A. Eisenlohr is the Local Secretary, and will render any service which will enable manufacturers of pharmaceutical wares to make an exhibit. The State Medical Association holds its annual meeting at the same time and place.

The following letter is published at the request of Mr. L. C. Hopp, of Cleveland, for the benefit of Ohio druggists:

Lewis C. Hopp, *Sec'y Ohio State Phar. Assoc.*

Dear Sir:—In order to increase the interest in answering the queries at the next annual meeting of the O. S. P. A., we will offer a prize for the best answer to any of the queries submitted by your committee. Also a second prize for the next best answer. The matter of deciding who are to be entitled to these prizes to be left to a committee of three, who are to be appointed by the President. The winner of the first prize will be entitled to any *prescription scale* in *Tromner's list* he may choose, not exceeding *twenty-five dollars* ($25.00) *list.* The second prize will be a "*B. M. & Co.*" *combination suppository mould* costing *seven dollars and fifty cents* ($7.50).

Yours truly,

Benton, Meyers & Co.

Acetico-Tartrate of Aluminium is said, by Altenstart and Schaefer (*Deutsche Med. Woch.*, 23, '85), to be almost a specific for ozena. A teaspoonful of a 50% solution is added to one-half or one pint of water, and is applied directly to the seat of the disease. Its action resembles somewhat that of a 20% solution of nitrate of silver, but is much more remarkable in its effects. The odor rapidly disappears, scabs become thinner, and are more easily detached, and the atrophied mucous membrane assumes a healthier appearance. When the bone has not become so diseased as to be loose, a cure may be expected in a fortnight. It is also stated that its effects in laryngeal ulceration are far superior to those of boric acid.

A Method for Approximately Estimating the Strength of Carbolic Acid.

ABOUT two years ago, Dr. Vulpius suggested that the percentage of absolute carbolic acid in any sample of crystallized acid could be determined by ascertaining the amount of water it was capable of dissolving. Mr. Theodore Salzer has made use of this suggestion, and worked out a table by means of which the percentage strength may be at least approximately determined.

Schlickum found that 1 molecule of phenol could unite with 2 molecules of water, which would be in the proportion of 94 : 36, or 100 : 38.3. Salzer found that 100 parts of the pure acid which he had in hands could combine with 35.3 parts of water, which figure sufficiently agrees with the former, for all practical purposes. Of course, the method cannot be expected to yield entirely accurate results; but it will be be very useful in practice.

Salzer first prepared a series of known mixtures of pure, anhydrous liquefied carbolic acid with definite proportions of water, and determined subsequently, by experiment, how much water could still be added to each sample without rendering the liquid opaque (through an excess of water). He obtained the following results, the figures meaning *parts by weight:*

A mixture of		still dissolves	A mixture of		still dissolves
C. Acid	+ Water.	water.	C. Acid	+ Water.	water.
100	10	23.0	100	23	9.9
100	11	21.9	100	24	9.0
100	12	20.8	100	25	8.2
100	13	19.7	100	26	7.4
100	14	18.6	100	27	6.5
100	15	17.6	100	28	5.7
100	16	16.6	100	29	4.8
100	17	15.6	100	30	4.0
100	18	14.6	100	31	3.2
100	19	13.6	100	32	2.4
100	20	12 7	100	33	1.7
100	21	11.7	100	34	1.0
100	22	10.8			

Upon these results is based the test-table proper, which shows (approximately) the percentage of absolute carbolic acid, after it has been ascertained how much water may be added to any sample of liquefied acid without rendering it opaque. This is the table:

If 10 Gm. of a liquefied carbolic acid can still dissolve, of water:	Then the sample contains of absolute phenol:
0.1	75.0
0.2	75.5
0.3	76.0
0.4	77.0
0.5	77.5
0.6	78.5
0.7	79.0
0.8	80.0
0.9	80.5
1.0	81.5
1.1	82.0
1.2	83.0
1.3	83.5
1.4	84.5
1.5	85.0
1.6	86.0
1.7	86.5
1.8	87.0
1.9	88.0
2.0	89.0
2.1	89.5
2.2	90.0
2.3	91.0

If ordinary carbolic acid is examined in this manner, a correction should be made by adding 2 per cent.

[The author does not expressly prescribe the temperature at which the experiments should be made. But as it is necessary to make them with the *liquefied* acid, it follows that the latter must previously be warmed sufficiently to render it liquid. And it will undoubtedly be best to use water of the same temperature as the acid for mixing with it. According to the author, the results are but little influenced by a moderate variation of temperature.]

The experiment may be performed in a few minutes, even if the water is only added in drops. [When a large volume is available, it will be advisable to use ten times the quantity of acid and water given in the last table.]

If a sample of acid which has been rendered opaque by the addition of too much water, is allowed to stand in an open vessel, it becomes clear after awhile. This is, however, not due to a subsequent solution of the water, but rather to the evaporation of the excess. —After *Pharm. Zeit.*, 1886, 10.

The Estimation of Glycerin.

IT is often necessary to estimate the amount of glycerin contained in mixture. We have printed several papers on this subject, one of them being by Professor Prescott (NEW REM., 1878, 354). While the usual pharmaceutical preparations containing glycerin (such as fluid extracts, for instance) are much more complex than natural wines, yet the methods of determining the amount in the latter have been so thoroughly studied and improved that they will doubtlessly be applicable with equal accuracy to the former.

Some years ago, an Association of German Chemists had agreed upon a uniform plan of estimating glycerin in wines. This process has recently been subjected to a critical examination by L. Medicus and C. Full, of Würzburg, who gave particular attention to the following points:

1. How much lime and quartz sand should be added to the sample?
2. What is the proper amount of alcohol used for extraction?
3. How should the alcohol be evaporated or distilled off?
4. How should the ether be added?

The following is the process as amended by the authors.

100 C.c. of wine are evaporated on the water-bath in a capacious, not flat-bottomed porcelain capsule to about 10 C.c., 2 Gm. of quartz-sand and 3 C.c. of milk of lime [containing 200 Gm. hydrate of calcium, $Ca(HO)_2$ in 500 C.c.] are added, and the mixture evaporated almost to dryness. The residue is treated, under constant trituration, with 50 C.c. of alcohol of 96% by volume, the mixture, while being stirred, raised to boiling on the water-bath, and the solution, after being somewhat cooled, poured through a filter. The residue is treated with 3 successive portions, each, of 50 C.c. of the same alcohol, so that the united filtrates shall measure 200 C.c. Of this amount, 150 C.c. is distilled off, and the remainder is evaporated on the water-bath to a viscid consistence. The residue is dissolved in or treated with 10 C.c. of absolute alcohol, the solution transferred to a bottle provided with a tight stopper, 15 C.c. of ether gradually added, and the whole well mixed. When the layers have separated completely, the layer of ether-alcohol, which must be filtered if necessary, is cautiously evaporated in a thin small bottle, the glass stopper of which is laid aside, until the residue in the bottle ceases to flow readily to and fro. The bottle is then heated for another hour in a steam drying oven, stoppered, and, when cold, weighed.

The above process yields results which do not differ more than four per cent from the true amount. In some of the author's experiments, the approach to the actual quantity was much closer. [In Professor Prescott's experiments, reported in the paper above mentioned, the approach to the actual quantity present was still closer.]

The authors expressly add that the glycerin thus obtained must not be regarded as perfectly pure.—After *Rep. d. Anal. Chem.*, 1886, No. 1.

In connection with the preceding paper, it will be of interest to state that Messrs. William Fox and J. A. Wanklyn, having found the ordinary methods of glycerin determinations to be inaccurate, worked out the method given below, which is based on the fact that glycerin oxidized with permanganate of potassium in a strongly alkaline solution, gives *oxalic acid* according to the equation:

$$\underset{\text{glycerin}}{C_3H_8O_3} + O_5 = \underset{\text{oxalic acid}}{C_2H_2O_4} + CO_2 + 3H_2O.$$

The oxalate can be precipitated by a lime salt, and the amount of oxalic acid determined, and the equivalent quantity of glycerin calculated therefrom. Their process is as follows:

An aqueous solution of glycerin (which should not contain more than 0.25 gramme $C_3H_8O_3$) is made strongly alkaline by adding 5.0 Gm. of solid caustic potash; powdered permanganate of potassium is then gradually added, until the solution is of a permanent pink color; the solution is kept at the boiling-point for half an hour, and then the excess of permanganate decomposed with sulphurous acid, either in solution or as gas. The solution, which should now be colorless, is filtered from the precipitated oxide of manganese, and made acid with acetic acid, and boiled; a calcium salt is added, and the resulting oxalate collected on a filter and thoroughly washed with boiling water. As the precipitate is not pure oxalate of calcium [it also contains sulphate], the oxalic acid in the calcium salt is estimated by titrating with standard permanganate in the usual way; with a moderate amount of care, this process is very accurate; the difference in several experiments should be under one-half per cent.

In the saponification of fats in which it is proposed to estimate the glycerin, care should be taken to have the whole of the alcohol driven off, as dilute alcohol treated with alkaline permanganate gives oxalic acid. It may be mentioned that the acids of the acetic series do not oxidize to oxalic acid with alkaline permanganate, whilst the acids of the acrylic series do.—*Chem. News* and *Chem. and Drugg.*

The Green Coloration of Apomorphine and its Solutions.

MR. BERNBECK, of Ludwigshafen, writes to the *Pharm. Zeitung* on the subject of the development of a green color in dilute solutions of apomorphine. This is a well-known occurrence, but, in our experience, is not confined to dilute solutions; it is also noticeable in strong solutions and even sometimes in the salt itself.

The green color has been supposed to be produced through the influence of light, and the solution of the salt has therefore been usually dispensed in dark glass.

Mr. Bernbeck having observed that the addition of a small quantity of hydrochloric acid to the solution retarded or prevented this change, he suspected that the latter was due to the influence of ammonia. This was made evident in the following manner:

A solution of apomorphine, prepared either with distilled water, or with syrup, or infusion of ipecac, etc., and containing a small quantity of hydrochloric acid, is mixed with highly diluted water of ammonia in drops until the reaction is alkaline. An emerald green color will be the result. The same effect is produced if the solution is placed into a room in which ammoniacal vapors are present, but in this case the change of color takes place much more slowly.

For this reason, it appears to be advisable that solutions of apomorphine should be dispensed containing a slight excess of hydrochloric acid, and should not be kept in sick-rooms or other places where ammoniacal vapors are liable to be given off.

HEATING AND DRYING APPARATUS.

PROF. VICTOR MEYER describes a form of drying apparatus which he employs when a single vessel is to be successively exposed to varying temperatures, or to a constant temperature obtained by definite liquids.

The apparatus is constructed of copper, and all joints, etc., are hard-soldered. It stands on a tripod, for convenience, and is heated by a gas-burner attached to the apparatus, but not shown in the cut. At *b*, a tubulure is attached in which a glass tube is inserted which acts as an upright condenser. A current of air can enter by the tube *a*, and the escape of air and moisture takes place at *d* which is generally protected by a sliding lid. The crucible or other vessel may be placed directly upon the bottom of the inner box, but, to keep it clean, a perforated porcelain cylinder *e* may first be introduced.

To produce constant temperatures, the following liquids may be used:

Boiling:	*Produces in the interior a temperature of:*
Water	206.6° F.
Toluol	224.6° F.
Xylol	276.8° F.
Anisol	302° F.
Tar-Cumol.....	222°-323° F.
Naphthalin.. ..	392° F. and over.

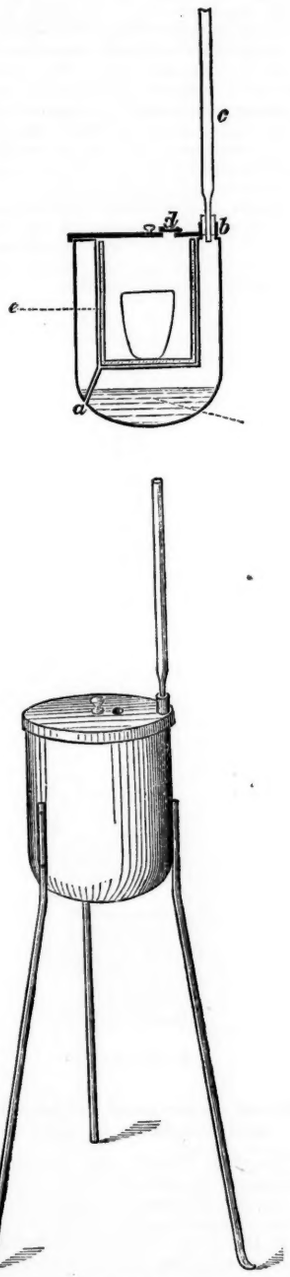
A sufficient quantity of any of these is introduced into the chamber, and a small flame applied below so that the liquid will boil, without the vapor rising more than an inch or so in the condensing tube *c*.

This form of apparatus answers not only as a drying oven, but may be used as an oil-bath for many purposes. Whenever possible, it is of advantage to use a separate apparatus for each different kind of liquid.—After *Ber. d. Deutsch. Chem. Ges.*, 1885, 2,999.

The Flower Harvest at Mitcham (Eng.).

A REPORT in the *Chemist and Druggist* states that the lavender crop, which is cut in the early part of August, was last year unusually good both in quantity and quality. The plant flowers three years in succession, those of the second year being considered the finest. After the third year it grows stalky and coarse. A field that has grown lavender for three years is generally changed for wheat, oats, or potatoes for a year, then planted with peppermint for the next three years, and again with wheat or potato before coming back to lavender. Four years ago was *l'année terrible* for lavender-growers. Frosts and an apparently fungoid disease almost totally destroyed the crops. Messrs. Bridger, of Mitcham, that year distilled less than a Winchester quart of oil which, even at eight guineas per pound, was very poor business. Curiously the disease has not appeared again, though no special precautions seem to have been taken against it. The real lavender water, that is the distilled water from which the lavender oil has been collected, is a perquisite of the workmen, and is sold at Mitcham by the quart. Messrs. Bridger keep their oil in Winchesters, uncorked. Lavender is not a volatile oil [?], and there seems to be a theory that it is improved by contact with the air.

The peppermint crop has not been an exceptionally large one this year, but the oil is said to be very fine. There are two English oils of peppermint distilled, one from white, the other from black peppermint. The black peppermint, however, is not grown in Mitcham proper. There seems to be no botanical difference between these plants, but the difference in aroma is considerable, as is evidenced by the fact that, while the oil from the black peppermint is worth about 30*s*. per pound, that from the white will bring nearly 50*s*. Peppermint also grows for three years. After the harvest the fields are "dotted," that is, the new runners are hoed; in November the the old plants are ploughed in, and the young ones covered. Farmyard manure seems to be all that is used at Mitcham. For peppermint, elsewhere, wool-dust from Bradford is said to be a favorite manure.



Meyer's drying apparatus.

Chamomiles, which are largely grown by Messrs. Bridger, are a dainty crop. The beds are set out every March, and the flowers are gathered in August. They are not fit to gather until they are quite white, and then a heavy rain will seriously damage them. Another difficulty, Mr. Bridger says, is with the gathering. Formerly women were glad to do it for the 1*d*. per pound paid; now they have to employ children, who are less particular. Increasing the wage is a yet untried remedy.

Roses on this farm also yielded satisfactorily last year. Messrs. Bridger have been growing some Provence roses, and have distilled rose-water, but they do not seem satisfied with the experiment, and do not intend to continue the cultivation. The Rosa Gallica is, however, evidently good business with them. This harvest requires very watchful attention. "Gather ye rosebuds while ye may," wrote Herrick, and he quite correctly adds that "the same flower that smiles to-day, to-morrow may be dying." But for druggists they must be caught even before they smile. Only those gathered in the bud pass as "firsts." If the flower has blown it only sells for confection, and at a lower price. In thundery weather sometimes the buds will open with provoking alacrity, and very early in the morning, between three and six, is the only safe time for collecting the buds. Then they are passed to a number of women, who deftly nip the white claws from the petals, and the still unopened velvety buds are dried rapidly over a stove, and sold for the *Folia Rosæ Gallicæ* of the shops. The leaves for confection are not dried. Bentley and Trimen tell us that 2,000 rosebuds yield about 10 lbs. of dried or 100 lbs. of fresh petals.

Licorice is grown largely at Mitcham; so are boys. Consequently it has been found necessary to keep the licorice-fields near home. The plant takes four years to come to perfection. The roots are dug up in November, and those which are not dried for powder are buried in trenches. Licorice-roots are sometimes four or five feet long, but they want a rich loam to grow to that extent. For powder the roots are trimmed and decorticated, cut into little finger-lengths, and carefully dried over a furnace. The trimmings are also dried and powdered for horse-powders.

Lovage is another of the products of this farm, but it seems to be going out of use. Poppy-heads are regularly raised here, as also are belladonna, henbane, and stramonium.

One other crop may also be mentioned—the *Ecballium Elaterium*, or squirting cucumber. Messrs. Bridger grow the plant and prepare the elaterium, and the business is by no means a sinecure. "We lost one man through it," Mr. Bridger observed, and the man who works it now, and showed us all his apparatus, remarked that during the period when that work is on, he never gets any rest. The English elaterium is well known for its purity, but it does not bring the price it once did. Years ago it fetched three guineas an ounce; now an ounce will not command a single guinea, though that price is four or five times as much as is paid for the foreign product, most of which comes from Malta. Mr. Bridger talks of suspending his cultivation of this uncanny plant for a year or two, apparently on the principle of absence making the heart grow fonder.

There are four stills in the Bridgers' place, and the biggest is a curiosity. No one would venture a guess as to its capacity, but we were told that its regular charge is a ton and a half of herb. The same still can be used for lavender, peppermint, and chamomile. Filling with water and vaporing it off once, entirely clears it of the odor of the last operation.

Quantity of Bromine in Sea-Water.

RECENT investigations of Emil Berglund (*Ber. d. Chem. Ges.*, 1885, 2,888) have shown that previous determinations of bromine in sea-water have generally furnished figures which were too high, and also, that the proportion of bromine in the water is everywhere about the same. The mean of the author's results is about 64 milligrammes of bromine in 1 liter, or 1 grain in about 34 fluid ounces.

Chocolate Manufacture at Bordeaux.

U. S. Consul George W. Roosevelt, of Bordeaux, reports:

There are several chocolate manufactories in this consular district. The largest share of public esteem and confidence is enjoyed by Messieurs Louit Frères, established at Bordeaux since 1827. Their factory proper, machine shop, and other necessary buildings cover very nearly four acres of ground. With the exception of the large granite cylinders and moulds, all the machinery requisite to the making of chocolate is made on the premises. Three hundred and fifty hands (men and women) are employed. Each department is under the supervision of an experienced foreman. The average weekly production is seven thousand pounds of chocolate, which is mostly consumed in France. Messieurs Louit Frères import the cacao-beans, which are delivered here in barrels and gunny sacks containing from ninety to one hundred and sixty pounds each, principally from Puerto Cabello. The first important step in the preparation of chocolate is to sort according to size, and to clean the cacao-beans. They are then roasted (a process similar to that applied to the green coffee-bean); the roasting thoroughly dries the bean, and renders friable the thin, brown shell. Cacao acquires different qualities according to the different degrees of roasting, as, for example, the Italians roast the beans to excess, which produces a bitter chocolate. The Spaniards go to the other extreme and insufficiently cook the cacao, which gives a more greasy, but less bitter article. The French adopt a happy medium between the two extremes, with the excellent result of retaining an agreeable equality of taste and perfume, and giving to the consumer an unrivalled chocolate. After the cacao-bean is roasted, the thin, brown shell is separated from it by winnowing. The beans, with a proportionate amount of sugar and flavoring, are then put into the crushing-machine to be reduced to paste. When chocolate was first introduced into France, it was made by journeymen chocolate makers, going from city to city, and carrying with them their primitive machines. In those days, the beans were crushed by a pestle in a heated mortar. This custom still exists in certain provinces of France. In all the important manufactories this primitive mode has been superseded by machinery, and the crushing and mixing is done by a machine with a large granite cylinder revolving over a heated marble slab. When the paste is thoroughly mixed, it passes from this machine to another which completely expels all air globules from the mass; it is then put into moulds, and left to cool. The moulds are in the form of tablets, divided into fractional parts, which are easily separated, each small tablet being sufficient to make one cup of chocolate. The tablets, after being carefully wrapped in tinfoil, to protect them from dampness or other causes which may affect the quality or perfume, especially the latter, which is very volatile, is finally wrapped in a paper envelope, and thus becomes the chocolate of commerce.

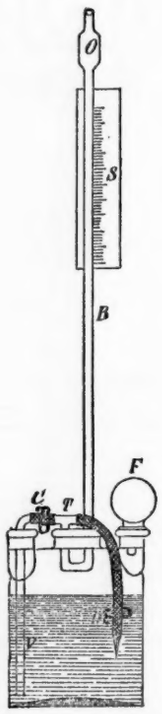
To make good, pure chocolate, it costs the manufacturer from forty to fifty-five cents per pound. A fair article, however, can be made at a much more reasonable price.

Nerolin is a white crystalline powder, introduced by Schimmel & Co., of Leipsic, said to contain all the odor of neroli oil in one-tenth of the weight of the latter. It is soluble in 30 parts of strong spirit or in 25 parts of fatty oil, but only to a very slight extent in water.—*Chemist and Druggist.*

A NEW FORM OF BURETTE.

K. Burdon recommends the form of burette here illustrated for analytical operations in which one and the same solution is required to be used for a long time. It has the advantage that the burette needs no holder, and the whole apparatus may be carried about, and placed on any flat surface.

A three-necked flask or bottle is selected, with a rather wide central neck. Into one of the others a tube with rubber bulb, *F*, is fitted, and into the other a glass-tube passing through the bottom, the outer end of which is bent and connected with a T-branch, connecting both with the burette *B* and with the out-let tube. The latter is provided with a pinch-cock *D*, and another pinch-cock is applied at *C*. If the latter is opened while the former (*D*) is shut, and the air in the flask is compressed by means of the bulb, the liquid will rise in the burette to any desired mark, where it will be retained by releasing pressure on the pinch-cock *C*. The liquid will then flow from the burette by suitable pressure upon *D*.—*Polyt. Journ.*, 256, 503.



Burdon's burette.

Which is the most delicate Indicator for Acids or Alkalies?

Prof. G. Lunge draws attention to the fact that the elaborate researches of R. S. Thomson (published in the *Chem. News*) have conclusively shown that the most delicate indicator for acid or alkalies is the substance proposed by Prof. Lunge already in 1878 and since then examined and recommended by many other observers. This substance is "dimethyl-amido-azobenzol-sulphonic acid," first known in commerce as "Poirrier's orangé III," and afterwards called "helianthin." The latter name, however, was subsequently applied also to other bodies, and for this reason, Lunge proposed to designate it as *methyl-orange*. Whatever objections have been made against this substance as indicator are all due to the circumstance that too much of it has been used for coloring, or that the liquid to be titrated was heated, or that some other but the above-named chemical has been supplied under this name.

Prof. Lunge also makes a curious statement regarding a very delicate indicator recommended by R. Engel and J. Ville (in *Compt. Rend.*, 100, 1,074), namely, the so-called cotton-blue of Poirrier (of St. Denis, near Paris), with the mark C_4L. This agent passes from bright rose-red, through violet, to pure blue, and the transition is very sharp. But as has been ascertained by Lunge and others, the transition point of the color does not exactly coincide with the neutralizing point of the liquid, but appears already before the caustic alkali is completely neutralized. Instead of 10 C.c. of normal acid, only 9.5 C.c. are required to produce the change.—After *Ber. d. Deutsch. Chem. Ges.*, 1885, 3,290.

[In our opinion this may possibly yet be accounted for by some simple explanation which so far has escaped notice. We expect to be in possession of a sample of the substance shortly, and intend to give it a trial.]

Detection of Gamboge in Mixtures.

Mr. Ed. Hirschsohn, of St. Petersburg, recommends the following method for detecting gamboge in mixtures.

Triturate the dry object—if a liquid, it is first to be evaporated with powdered glass—to a very fine powder, and agitate the latter with petroleum-ether. Should this remain colorless, another sample must be strongly acidulated with hydrochloric acid, and again treated with petroleum-ether. The reason is this, that the latter menstruum does not dissolve gamboge if soap is present, which is frequently the case in pills. If the menstruum remains colorless in the second experiment, gamboge is absent. But if it has a yellow color, the presence of gamboge may be detected by the following further tests. A small portion of the solution is shaken with dilute soda-solution. If the latter acquires a red color, the larger remaining portion of the solution is saturated with gaseous ammonia, any flocculi thereby produced separated by filtration, washed with petroleum-ether, and then dissolved in alcohol. On adding to this a few drops of alcoholic solution of ferric chloride, it should turn black; and when mixed with dilute solution of soda, it should not acquire a red, but only a darker yellow color. Mr. Hirschsohn states that he has been able to prove the presence of as little as 0.01 Gm. (about $\frac{1}{6}$ grain) of gamboge.*

Reward for the Discovery of a Substitute for Gum Senegal.

The Société industrielle of Muhlhausen has announced a large number of rewards, in the shape of various medals and sums of money, for the discovery of industrial improvements, chiefly relating to the textile industry. Among them is one which may possibly interest some of our readers.

A medal of honor and a prize of 5,000 francs is offered for the discovery of a substance, suitable as a substitute of gum senegal in all of its applications, and costing less than the latter, which is now worth about 100 francs per 100 kilos.

Berthault's Taffeta is a new dressing for wounds lately introduced in Paris. This plaster is said to be as transparent as glass, and as thin as an onion skin. The condition of the surface covered by it is as easily seen as though it were uncovered. It is as elastic as India-rubber, is not permeable by fluids, and is not affected by changes of temperature, acids, alkalies, nor the secretions of the body.

* Abstract of a paper on this subject by Ed. Hirschsohn in the *Pharm. Zeitsch. of Russland.* Reprint received from author.

CONDENSER FOR EXTRACTION APPARATUS.

F. ALLIHN describes an improved form of upright condenser, which may be used with highly volatile substances, such as ether, without having to fear any loss of liquid. As will be seen from the cut, the condensing tube proper consists of a series of bulbs connected by narrow branches. It has been ascertained by Allihn that this form of condenser is the most effective. When the ether boils briskly (at a temperature of the water-bath of 60–70° C.), and a moderate current of water passes through the condenser, the ether vapor is almost completely condensed in the two lower bulbs. Only when a large volume of vapor is suddenly given off, does any of it ascend as high as the fourth bulb. —*Zeitsch. f. anal. Chem.*, 1886, 36.

On the Decomposition of Chlorine Water in Sunlight.

IT has been held heretofore that an aqueous solution of chlorine, when decomposed by sunlight, was changed to an aqueous solution of hydrochloric acid, and that oxygen was liberated:

$$H_2O + Cl_2 = 2CHl + O$$

Alfred Popper, however, a short time ago (*Liebig's Annalen*, 227, 161) demonstrated the fact that the resulting aqueous solution, when neutralized with potassa, contained a considerable proportion of *chlorate*, besides the chloride of potassium. The author's first experiments did not show whether the chloric acid was contained in the aqueous liquid, decomposed by sunlight, or whether it was produced during the evaporation of the neutralized solution, perhaps by the decomposition of a hypochlorite. To decide this question, and also to ascertain whether the chlorate and chloride thus obtained were always formed in definite and constant proportions, a new series of experiments was undertaken by the author.

The results obtained showed that the chloric acid must have been present in the decomposed chlorine water before evaporation. It also showed that the relation of chloric to hydrochloric acid contained in the decomposed water was as 10.9 to 40.79.

It follows from the author's statements that the reaction illustrating the decomposition of chlorine water is as follows:

$$\underset{\text{chlorine}}{5\,Cl_2} + \underset{\text{water}}{5H_2O} = \underset{\text{chloric acid}}{HClO_3} + \underset{\text{hydrochloric acid}}{9HCl} + \underset{\text{oxygen}}{O_2}$$

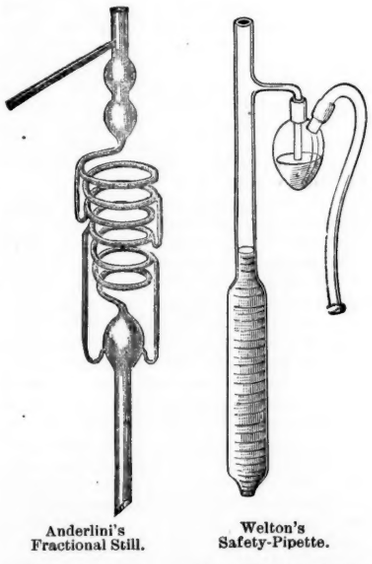
In addition, there appear to be traces of a compound present—perhaps hypochlorous acid or a derivative of it—which separates iodine from iodide of potassium. Bromine water appears to decompose in precisely the same manner.—*Liebig's Annalen*, 231, 137.

Oil of Jatropha Curcas.

IN one of our last numbers we pointed out the improbability of the truth of the report that the fixed oil obtained from Jatropha Curcas (once known under the name Oleum Ricini Majoris), has ever been used for adulterating or as a substitute for olive oil. In another journal we read now that it is often used for adultering cotton-seed oil. This is as unlikely as the other. Accidental admixture may have occurred, but wilful adulteration of such an abundant and cheap article as cotton-seed oil, by means of an oil which is comparatively scarce, is out of the question.

APPARATUS FOR FRACTIONAL DISTILLATION.

THE apparatus here described was designed by Dr. Francesco Anderlini, of Padua. It consists of a coil of five or more turns of glass tubing, which are connected together as originally proposed by Le Bel and Henninger, as shown in the cut, by drain-tubes. The lower ones of these are somewhat contracted near their lower end, and all of them form a small pocket which keeps full of liquid, and thereby prevents the steam ascending from the flask from passing out by these tubes. The firm of C. Desaga, of Heidelberg, furnishes this apparatus.—*Chemiker-Zeit.*, 1885, No. 53.



Anderlini's Fractional Still. Welton's Safety-Pipette.

Naphthol.

The pharmacopœia committee of the German Pharm. Association propose to characterize the substance as follows:

Naphtholum
[Iso- or β-Naphthol].

Colorless, crystalline scales of a silky lustre, or a white, crystalline powder of a faint, phenol-like odor, and a sharp, burning, but not persistent taste, melting at 123° C. [253.4° F.], and boiling at 286° C. [546.8° F.]. It is soluble in about 1,000 parts of cold and in 75 parts of boiling water, forming a solution of an aromatic taste, which acquires a violet fluorescence upon the addition of ammonia, and with chlorine water yields a strong, white turbidity, which disappears again on the addition of ammonia, the resulting liquid assuming a green, afterwards brown tint. Ferric chloride colors the solution greenish. Ferrous sulphate, as well as acetate of lead, produce no reactions. Naphthol is easily soluble in alcohol, ether, benzol, chloroform, oils, and alkaline solutions.

Naphthol should be soluble in 50 parts of officinal (10%) water of ammonia, and when precipitated from this solution by hydrochloric acid, should appear of a pure white color. Its hot aqueous solution should not assume a violet color with ferric chloride [abs. of carbolic acid]. When heated on platinum foil, it should be completely dissipated.

According to Prof. Flückiger, ferric chloride may be used as a test to distinguish between the alpha and the beta (or iso) naphthol. If added to an aqueous solution of the latter, it produces greenish color, and in five minutes a white turbidity. After two hours, the liquid will have become clear, and needle groups of tolerably pure beta-dinaphthol will have been deposited. In the aqueous solution of alpha-naphthol, the reagent produces a white precipitate of alpha-dinaphthol, which gradually turns violet, beginning from the bottom.

SAFETY-PIPETTE.

WHEN caustic or irritant liquids are to be sucked up into pipettes great care must be exercised to prevent any of the liquid or the evolved vapors getting into the mouth. We have, on several occasions, met with accidents from this cause, in spite of reasonable care to guard against it. On one occasion the writer attempted to fill a pipette with moderately strong hydrochloric acid by gentle suction, and though the rate of inflow was carefully watched, yet it had not been noticed that the orifice of the pipette was accidentally contracted by a small splinter of glass, wedged in. This became suddenly detached and exposed the full orifice of the pipette, causing such a rapid influx of acid, that the latter reached the mouth before suction could be stopped. On another occasion, caustic potash solution was projected into the mouth by a similar accident.

We have, since we made the latter experience, always used an intermediate vessel when attempting to aspirate any caustic liquid by the mouth, and can recall several instances when this precaution has certainly resulted in saving us from injury.

A safety-pipette, specially constructed for this purpose by H. Welton—which may be used for drawing bromine, acids, and other similar liquids into the pipette—is shown in the accompanying cut. The pipette is closed at the top and is filled by suction at the lateral tube, causing the air contained in the pipette, or any liquid or vapor that may be carried over to pass through soda-solution contained in the safety or wash bottle.—*Génie civil*, 1885, 257.

Unchangeable Solution of Starch and Iodide of Potassium.

STARCH and iodide of potassium solution is a reagent which is used for various purposes, but which cannot be kept long without alteration. For this reason, it has been recommended to replace it by starch and iodide of zinc solution.

Alexander Müller has shown that ordinary starch solution may be kept for years by treating it with caustic potassa. C. Reinhardt has utilized this method for preparing a permanent solution of starch and iodide of potassium as follows:

Weigh 5 Gm. of finely powdered wheat starch, put it into a flask holding 1 liter, add about 50 C.c. of water, shake well, wash the adhering starch down into bottom of the flask by means of the wash-bottle, and add 25 C.c. of solution of caustic potassa (prepared from 1 part of caustic potash purified by alcohol, and 2 parts of water). Shake well. To the homogeneous, gelatinous mass thus produced add 500 C.c. of water, also 2 Gm. of iodide of potassium, and heat the flask on a plate of asbestos to boiling—repeatedly shaking—until a clear solution results. Let cool, pour the contents into a graduated cylinder, fill it up with water to 1,000 C.c. and filter.

This solution will keep any length of time and need not be put in a dark place.—*Zeitsch. f. anal. Chem.*, 1886, 37.

Preparation of Vanillin from the Resin of the Olive Tree.—A. Scheidel, of Milan, has patented (Germ. Patent, No. 33,229) a process, by which the resin of the olive tree, or else the principle known as olivile (re-crystallized from alcohol) may be converted into vanillin by oxidizing agents.

Churchill's Tincture of Iodine.

In answer to a correspondent, the *National Druggist* gives the following collection of formulas for this preparation, and remarks that it is "an excellent example of the diversity of formulæ for unofficinal preparations."

"The following three formulæ have been furnished us by druggists of this city, each one stating that his was the original:"

Take of
- Iodine ..... 2½ troy oz.
- Iodide of potassium.. 4 drs.
- Alcohol.....12 fl. oz.
- Water ..... 4 fl. oz.

Dissolve the iodine in the alcohol, and the iodide of potassium in the water. Mix the two solutions.

This contains 75 grains of iodine, and 15 grains of iodide of potassium, in each fluidounce.

Take of
- Iodine ..... 80 grs.
- Iodide of potassium .....40 grs.
- Alcohol..... ..... 1 fl. oz.

Mix. Fiat solutio.

This contains 80 grains of iodide of potassium, and 40 grains of iodine, to the fluidounce, and hence is stronger than the former preparation.

Take of
- Iodine..... 2½ troy oz.
- Iodide of potassium.. 4 oz.
- Alcohol.....13 fl. oz.
- Water ..... 3 fl. oz.

Mix. Fiat solutio.

This is of the same strength as the first formula, but differs in menstruum.

The New York Hospital uses the following:

Take of
- Iodine..... ..... 1 dr.
- Iodide of potassium.....2 drs.
- Water..... .....2 fl. oz.
- Alcohol ....2 fl. oz.

Mix. Fiat solutio.

This contains 15 grains of iodine, and 30 grains of iodide of potassium, to the fluidounce.

The following is taken from Beasley's Book of Prescriptions:

Take of
- Iodine..... ..... 1 troy oz.
- Iodide of potassium... 2 troy oz.
- Water .... 2 fl. oz.
- Alcohol .....12 fl. oz.

Mix. Fiat solutio.

The strength is 30 grains of iodine, and 60 grains of iodide of potassium, to the fluidounce.

Some time ago, an exchange gave the following:

Take of
- Recrystallized iodine ....5 drs.
- Iodide of potassium.....1 dr.
- Stronger alcohol.....3 fl. oz.
- Water..... .....1 fl. oz.

Rub the iodine and iodide of potassium together until finely divided. Dissolve as much as possible in the water, decant the aqueous solution, and triturate the residue with the alcohol until dissolved, and mix both solutions. This contains about 75 grains of iodine, and 15 grains of iodide of potassium, to the fluidounce.

A druggist should never dispense this tincture on a prescription until he knows the strength intended by the prescriber.

Local Sedative for Teething of Infancy.

The following is recommended by Dr. Bouchut, of Paris, for use in painful dentition:

- Cocaine muriate... ..... 1 part.
- Sodium borate..... 1 "
- Syrup of Marshmallows..20 parts.
- Syrup of Poppies.....10 "

M. Rub the gums gently with the syrup four times a day.

Quillaia as a Substitute for Senega.

It is well known that the acrid principle contained in senega which produces such a peculiar sensation, particularly in the fauces, is identical with that found in several other plants, and that it had been known by various names, derived from the latter, until its identity was fully recognized. It was first discovered by Schrader in the beginning of this century, in the root of *Saponaria officinalis* L., and was named saponin. Subsequently it was found in the root of *Gypsophila Struthium* L., certain species of *Dianthus, Lychnis*, and *Silene;* in *Agrostemma Githago* L.; *Monnina polystachia R. et* P.; *Polygala Senega* L.; *Quillaia Saponaria* Mol.; and *Chrysophyllum glycyphlœum* Cas.

The physiological effects of saponin have also been often studied, though the different experimenters did not all employ saponin derived from one and the same source. But only one previous medical writer, viz., Martin St. Ango, is known to have used pure saponin therapeutically; his saponin, however, was named monesin, being derived from monesia bark which comes from *Chrysophyllum glycyphlœum.* He employed it as a styptic in uterine hemorrhages.

Dr. Kobert, of Strassburg, now proposes to utilize this frequent occurrence of saponin for practical therapeutics. He finds that quillaia bark contains about *five* times as much saponin (or senegin)—together with another glucoside, existing in similar proportions in both drugs—and he therefore suggests that preparations of quillaia (which is a cheap substance) be used in place of those of senega. Dr. Kobert calls the two glucosides here mentioned—and which, according to him, are comprised and confounded together under the old name of polygalic acid [or senegin, or saponin]—"quillaic acid," and "sapotoxin," respectively. And he states that it has been found by clinical investigations in Halle, Strassburg, Freiburg, and elsewhere that the administration of senega can be very efficiently replaced by that of quillaia.

The therapeutic results, he says, hitherto obtained may be expressed as follows: When expectoration is difficult from the tenacity of the mucus, it is facilitated through the latter being rendered thinner and more copious; at the same time the stimulus to expectorate is increased. It naturally follows that this remedy is not suitable for every case, and that it must not be employed when the urgency to cough and the raw feeling in the throat get too acute. Vomiting and diarrhœa occur more seldom than after the use of senega. Any aromatic or simple bitter may be used with it as a flavoring agent. The drug itself contains a large quantity of a sweet carbo-hydrate, and consequently can be employed in the case of poor persons quite well without any corrective, which is, of course, not the case with senega. The remedy is contra-indicated in cases of ulceration in the throat, or in the gastro-intestinal disturbances, since it is too energetic an irritant for such.—*Centralbl. f. klin. Med.* and *Med. Rec.*

Paraldehyde Formula.

Mr. G. F. Hodgson, an English surgeon, gives the following formula for administering paraldehyde:

- Paraldehyde... ..... ℥ i.
- Spirit of Chloroform ..... ♏ xv.
- Compound Tragacanth powder.... ʒ i.
- Syrup of Orange-peel..... ℥ iv.
- Water, enough to make ..... ℥ iij.

M. To be taken in one dose for producing sleep in cases of gout, mania, hypochondriasis, delirium, migraine, etc.

Thymolphthalein.

Among the derivatives of phthalic acid, there is one substance which has been permanently introduced into the list of reagents, namely phenolphthalein, which strikes a red color with the least trace of free alkali.

Another derivative, namely, thymolphthalein, has lately been added, which promises to serve for similar purposes, and may supplement the preceding reagent in some cases, since it does not give a red, but a *blue* color (more or less intense) with alkalies.

Acids cause the blue color of the latter to disappear just as they extinguish the red color of phenolphthalein.

Mr. C. Traub has given (in *Arch. d. Pharm.*, July [II.], 1885) a method for preparing this substance, and a description of its properties.

According to this author, equal parts of thymol, phthalic anhydride, and chloride of zinc are heated in a flask at a temperature not exceeding 150° C. (302° F.) for a period depending on the quantity of material to be operated on. The reaction progresses very quietly; the contents of the flask assume a fine red color, which remains as long as the above temperature is not exceeded. When the mass is in quiet fusion, the reaction is terminated. Boiling, highly diluted hydrochloric acid is first added to it, until it ceases to dissolve anything; the mass is then washed with boiling water; and subsequently, any unaltered thymol is removed by petroleum ether. Finally, the residue is purified by treating it several times with ether, and recrystallizing from ether-alcohol.

The product appears in white, prismatic needles, easily soluble in alcohol, less easily in benzol, ether, or chloroform, and but slightly so in water. It melts between 252° and 254° C. (485°–489° F.).—*Pharm. Zeit.*

Kumys.

The editor of the *Therapeutic Gazette* gives the following directions for making a good kumys:

Take of milk, one pint; white sugar, one tablespoonful; yeast, one-sixth of a Fleischman's Vienna cake as sold in Philadelphia stores. We believe one of these cakes is about equivalent to one-half pint of ordinary yeast, but persons making their own yeast in the country will have to get its exact value in this formula by a little experimentation. The sugar is to be added to the milk, then put into a bottle which can be tightly corked, and the yeast poured in; the whole well shaken, thoroughly corked, and put into a warm place for from six to twelve hours, according to the temperature and strength of the yeast and the variety of the koumiss desired. The longer the fermentation the more sour the koumiss. On removal from the warmth, the bottle is to be well shaken and be put upon ice to cool. This koumiss may be kept one or two days, but is best when prepared when wanted. In practice we have found it more convenient to use an ordinary beer bottle, with a patent stopper. As the conditions of this formula are not absolute, a little experience is usually necessary to get a good article.

[It will be found that a better way to secure a good article is to follow more closely the method of the Tartar tribes in using kumys itself to cause the fermentation. It may be necessary to start with yeast, but once commenced, a gill of kumys will answer to ferment a quart of milk.—Ed. Am. Druggist.]

An effort is being made to secure the enactment of a Pharmacy law in Maryland.

FORMULAS.

Milk of Magnesia.

A STABLE mixture is produced, according to E. Dieterich, in *Pharm. Centralh.*, by triturating

Calcined Magnesia..... 10 parts
with
Distilled Water.....100 "
and mixing with
Glycerin..... 40 "

Varnish for Metals.

Shellac, pale..... 50 parts
Sandarac..... 50 "
Alcohol, enough to make 1,000 "

Dissolve the shellac and sandarac in 900 parts of alcohol by maceration, filter, and add enough alcohol to make 1,000 parts.

This varnish may be applied to all kinds of polished metal.—EUGEN DIETRICH in *Pharm. Centralhalle*, No. 41.

Bookbinders' Varnish.

Shellac, pale .....120 parts.
Sandarac..... 30 "
Venice turpentine..... 14 "
Spirit of ammonia ..... 5 "
Oil of lavender ..... 1 "
Alcohol ....830 "

Macerate, with repeated stirring, until solution has been effected. Then filter.

To bring out the gloss fully upon leather, the latter should be dried over a charcoal fire.—EUGEN DIETRICH in *Pharm. Centralhalle*, No. 41.

Clarifying Alcoholic Liquids.

THE following mixture is recommended by E. Dieterich:

Dried Egg Albumen.... 40 parts.
Sugar of Milk..... 40 "
Starch ..... 20 "

Mix, and reduce to a very fine powder.

To clarify alcoholic liquids, mix them with the powder in the proportion of 5 Gm. per liter (about 75 grains per quart), and shake well and repeatedly during several days, keeping the liquid in a moderately cool place. Then filter.—*Pharm. Centralhalle.*

Syrup of Hydrobromic Acid.

P. COUDURE recommends to prepare this syrup in the following manner:

Bromine ..... 1 part.
Distilled Water.....20 parts.
Oil of Peppermint.....1 part.
Sugar... ....38 parts.

Mix the bromine with the water and add the oil of peppermint in drops, agitating constantly, so that the reaction shall take place progressively, and the temperature shall not be raised too high. When the reaction is over, which is indicated by the disappearance of color, transfer the liquid to a wetted filter, and add the sugar.

100 parts of the product contain $1\frac{8}{9}$ parts of bromine.—*Bull. Soc. Pharm. Brux.*

[A stronger syrup may be prepared in the same manner. — ED. AM. DRUGG.]

Antiseptic Mouth-Wash.

DR. MILLER found that, by using the following mixture, he could completely sterilize the mouth, cavities in carious teeth, etc.

Thymol ..... 4 gr.
Benzoic Acid.....45 gr.
Tincture of Eucalyptus. $3\frac{1}{2}$ fl. dr.
Water.....25 fl. oz.

The mouth is to be well rinsed with this mixture, especially just before going to bed, since most of the damage by fermentative and putrefactive processes in the mouth is done at night, during sleep, unless the exciting cause be previously removed or rendered inert.—After *Deutsch. Med. Wochensch.*

Toughening Paper.

A PLAN for rendering paper as tough as wood or leather has been recently introduced on the continent; it consists in mixing chloride of zinc with the pulp in the course of manufacture. It has been found that the greater the degree of concentration of the zinc solution, the greater will be the toughness of the paper. It can be used for making boxes, combs, for roofing, and even for making boats.—*Journ. Soc. Art.*

Permanent Indigo-Solution.

INDIGO solution is used as a reagent chiefly for nitric acid or chlorine. As usually prepared, it does not keep well, the indigo-carmine contained in it being gradually converted into indigo-brown. This change may be prevented by sterilizing the solution by means of boiling, and still more so by adding to the boiled solution about $\frac{1}{4}\%$ of sulphuric acid.—*Arch. d. Pharm.*, 223, 980.

Composition for a Nickel Bath.

WE give below a formula for a nickel bath, tried in several laboratories, which permits the deposit in a little while, and with a relatively weak electric current, of strong thickness of nickel upon metals:

Sulphate of Nickel..... 2 lbs.
Neutral Tartrate of Ammonium.26 oz.
Tannic Acid.....75 grains.
Water..... .. $5\frac{1}{4}$ gals.

The neutral tartrate of ammonium is obtained by saturating a solution of tartaric acid with ammonia. The sulphate of nickel ought also to be neutral. Dissolve the whole in three or four quarts of water, and boil it for about a quarter of an hour. Then add sufficient water to make $5\frac{1}{4}$ gallons. Then filter, and pour out. This bath can be made up indefinitely by adding the same ingredients and in the same proportions.

The deposit obtained is very white, smooth, and homogeneous, and although able to give a very considerable thickness, it produces no roughnesses on the surface, and does not scale off if the verdigris has been well cleansed from the pieces. By this process very good deposits of nickel are put upon rough or polished castings at a price not exceeding that of copper.—*La Nature.*

Oxidizing and Bronzing Iron.

A MELTING-POT, containing a mixture of saltpetre and a little peroxide of manganese, is put in a furnace (oven) to heat, until a shaving thrown on its surface takes fire. The articles to be bronzed, hung on hooks, are then plunged into this fused mass, and moved about in it until the desired color is obtained. Then they are lifted up and let drain, so that the saltpetre adhering falls back into the melting-pot. When they cool off to the temperature of boiling water, wash them, and plunge them into a bath of whale oil.

The result of these operations is the formation of a layer or setting of magnetic oxide of iron, which has a very beautiful color, and resists the action of dampness.

The saltpetre must be refined. The salt found commonly in the shops gives neither a satisfactory color nor uniform product. The metallic surface must be smooth, free from file cuts, but it must not be too polished. Treated in this manner, it takes a beautiful bronze color.

If the articles are clean, this process offers no danger of explosion. Should the melting-pot upset into the fire, the only production would be a slightly suffocating gas.—*La Nature.*

CORRESPONDENCE.

The Number of Apothecaries in the U. S. Navy.

Editor of American Druggist:

The number of apothecaries in the U. S. navy at the present time is about sixty.

They are rated as petty officers of the first class.

The salary is sixty dollars per month in all cases, except Annapolis, Md., Mare Island, Cal., and the Naval Dispensary at Washington, D.C., at which stations, by special act of Congress, the salary was made one thousand dollars per year.

They must be good pharmacists, so far as compounding prescriptions and the nature and actions of different drugs are concerned, understand minor surgery in cases of accident and there being temporarily no surgeon within reach, write a good legible hand, and be able to keep the books, except the medical journal, which is kept by the surgeon of the ship, except in rare cases, when a small vessel will have an apothecary in charge, when he must take care of everything appertaining to the medical department, at least until such time as the ship can reach medical assistance.

Apothecaries and bay-men, or nurses, will be selected by the senior medical officer with the approval of the commander of the vessel or station, and appointed to the position on taking the oath of allegiance to the United States.

This last paragraph is from the book of instructions for medical officers of the U. S. Navy. N. N.

Preventing Darkening of Elixir of the Pyrophosphate of Iron., etc.

To Editor American Druggist:

SIR:—In looking over the January number, I find that "J. D. C.," No. 1,636, is desirous to know how the darkening of the elixir ferri pyrophosphatis, etc., can be prevented. In lieu of the formulæ given by him, I would suggest the following formula of elixir of pyrophosphate of iron, quinine, and strychnine (which will be found in "Parrish's Pharmacy") as a substitute:

℞ Sulphate Quinia..... ...60 grains.
Strychnia..... ..... 1 grain.
Citric Acid .... 5 grains.
Stronger Alcohol ..... 3 fl. oz.
Spirit of Orange .... ..80 minims.
Syrup .... 6 fl. oz.
Pyrophosphate of Iron, $\frac{1}{2}$ fl. oz.
Distilled Water ..... 7 fl. oz.
Water Ammonia..... q. s.

Triturate the sulphate of quinine, strychnia, and ac. citric together until minutely divided; then add the alcohol and spirit of orange, warm the syrup slightly, and add it to the turbid mixture, when, on stirring, the mixture becomes clear. To this add the pyrophosphate of iron, previously dissolved in the distilled water (warm), and finally, carefully add water of ammonia, drop by drop, until the elixir is perfectly neutral to test paper.

The finished preparation has a greenish-yellow color, which is permanent: an agreeable flavor of orange, and is highly palatable. I have for some time and often prepared the elixir in the above manner, and find it an excellent method. It does not turn black as the "elixir" discussed by "J. D. C." in your columns, but retains its original color and niceness. This I know from experience.

ED. W. HAMBROCK.

SAN FRANCISCO, CAL.,
January 31st, 1886.

Cinchona Cultivation has been commenced in Guatemala. The plantations are at an altitude of 4,000 to 5,000 feet.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 1,668.—**Carbolated Iodine** (Subscriber, N. Y.).

A solution for "carbolate of iodine," for purposes of inhalation is the fol lowing, which is also know as *Boulton's Solution:*

Compound Tinct. of Iodine....	♏ 46
Carbolic Acid, liquefied	♏ 6
Glycerin	1 fl. oz.
Water..	5 fl. oz.

No. 1,669.—**Pyridine** (Dr. McI.).

Pyridine has lately been recommended as a remedy in asthma by Dr. Sée, of Paris, but we have not been able to learn that it has been tried here. We believe there is none in stock at present, but should be glad to be corrected in this by some of our readers. Its cost, direct from the manufacturers in Europe, is about $8 per pound, which would, of course, be very considerably increased by duty and other expenses. You can order it through any wholesale drug-house.

No. 1,670.—**Pharmacy Laws** (W. G.).

We published a list of the States in which pharmacy laws have been passed up to 1883, in our volume for 1884, page 118. Since then the Ohio law has been considerably amended, and new laws have been passed for the County of Erie, in New York State, and also for the State of New York, excepting the Counties of New York, Kings, and Erie. These laws will be found in full in the Proceedings of the Amer. Pharm. Assoc., 1884 (vol. 32), pp. 367–376.

No. 1,671.—**Bookbinders' Glue or Paste** (N. S.).

A very strong paste for pasteboard and other similar articles may be produced as follows:

4 parts of glue are soaked in 15 parts of cold water until soft. The mixture is gently warmed, until the solution is clear, and then mixed with 65 parts of boiling water. In another vessel, 30 parts of starch are mixed with 20 parts of cold water to a perfectly smooth paste, and this is gradually added to the solution of glue, which must be kept near the boiling point. When all is added, the heat is continued a few minutes longer and then withdrawn. The mass may be prevented from souring for some time by adding a little carbolic acid.

No. 1,672.—**Oil of Peppermint** (Consumer).

Fritzsche's test for pure oil of peppermint, not deprived of menthol, is as follows:

Mix thoroughly about one pint of snow or thoroughly crushed ice with a like quantity of finely powdered salt, and put this into any convenient open container (pot, measure, box, etc.) of the capacity of one quart. Into this place a corked test-tube not quite filled with the oil. After 10–15 minutes, the oil, if pure, will have become cloudy, translucent, thick, or of a jelly-like consistence. Then add 4 or 5 small crystals of pure menthol, recork and shake thoroughly. Replace the tube in the freezing mixture, and after a short time the pure oil will present a solid frozen mass of crystals. If the oil remain limpid or partially so, it has either been adulterated, or had its menthol extracted.

No. 1,673.—**Spontaneous Combustion of Carboys containing Nitric Acid** (W. A. W. & Co.).

Numerous cases are on record when carboys containing nitric acid, on being fractured from some cause, became ignited. Formerly it has been held that only the stronger acid is liable to produce this result, but recent experiments made by R. Haas (*Chem. Industrie*, 1885, 173) have shown that nitric acid of as low a spec. grav. as 29° B. or 1.250 (corresponding to about 40% of absolute nitric acid) may still produce ignition of dry *hay*, and an acid of 32° B. (spec. gr. 1.283) could still ignite dry *straw*. With a density of 28 B. (1.239) and 31° B. (1.271) respectively, only great heat but no flame was produced.

It is, therefore, advisable, to store all nitric acid of a density greater than 25° B. (1.208) in such a manner that an eventual fracture of the carboy may not lead to ignition.

No. 1,674.—**Compound Tincture of Jalap** (C. A. F.).

This preparation is officinal in the French Pharmacopœia. It has the synonyms: Alcoolé de Jalap composé; Eau-de-vie allemand; Tinctura purgans; and is prepared thus:

℔ Jalap.	80 parts.
Turpeth Root.....	10 "
Scammony (Aleppo)....	20 "
Alcohol 60%	960 "

Macerate the solids, properly comminuted, in a closed vessel during ten days, occasionally shaking. Then filter.

The turpeth is an East Indian drug, other names for which are turbeth, turbith, or the root of *Ipomœa Turpethum* R. Br. It is similar to jalap, but rougher in its action, according to Gray. Lindley says that the fresh bark of the root about six inches in length, and the size of a finger, is rubbed up with milk in India and used as a purgative. O'Shaughnessy made numerous careful experiments with the drug, and pronounced its action to be extremely uncertain. It is not likely to be had in this country.

No. 1,675.—**Solution of Bimeconate of Morphine** (S. S., Ohio).

This solution is officinal in the British Pharm., and was originally introduced with a view to supplying a solution of morphine such as was supposed to be its natural combination in opium. The formula is as follows:

Hydrochlorate of morphine....	gr. 9
Water ammonia (10%).....	q. s.
Meconic acid..	gr. 6
Alcohol (sp. gr. 0.838)	...fl. oz. ½
Distilled water.....	q. s.

Dissolve the hydrochlorate of morphine in 2 to 3 drachms of dist. water, aiding solution by warmth, then add ammonia until morphine ceases to be precipitated. Cool, filter, wash the precipitate with dist. water until the washings cease to give a precipitate with nitrate of silver. Drain, mix the precipitate with sufficient water to produce 1½ fl. oz. Add the alcohol and meconic acid, and dissolve.

(One British fluidounce = 461 minims.)

One fl. oz. of this solution contains about 5½ grains (or about 1½ per cent) of bimeconate of morphine ($C_{17}H_{19}NO_3 \cdot C_7H_4O_7$). The solution, as regards meconate of opium, is about the same strength as tincture of opium.

Dose: 5 to 40 minims.

No. 1,676.—**Peptonate of Iron** (A.).

In a paper presented last year to the French Academy of Sciences (see *Comptes Rend.*, vol. 101, p. 321), Maurice Robin described some properties of a compound of peptone with ferric chloride and glycerin. If a solution of peptone (that is albumen rendered soluble by pepsin or other digestive ferments) is mixed with a certain proportion of solution of ferric chloride, the resulting mixture still betrays the presence of iron by the usual reagents. But if glycerin be added to the mixture, and afterwards enough water of ammonia until the precipitate of ferric hydrate, which is first formed, is redissolved, a clear and transparent solution is obtained, which no longer gives any of the usual iron reactions. These are, however, revived as soon as the solution is acidulated with hydrochloric acid. The glycerin is a necessary constituent of the mixture before the ammonia is added. If glycerin is added after the ammonia, the precipitate will not dissolve. The solution of peptonate of iron thus produced may be injected into the veins, or mixed with any liquid of an alkaline character without being decomposed. It also dialyzes perfectly. Robin does not give any proportions, and it looks to us very likely that the omission of the proportions has been made purposely, so as to keep the manufacture and sale of the preparation in the hands of a monopoly. It is not the first time that this has been done, and notoriety for some article obtained by the presentation of some paper relating to it—but really giving no decisive information about it—before some scientific body.

No. 1,677.—**Melting Point and Solidifying Point** (E. R. W.).

It is a mistake to suppose that the melting and solidifying points of a fat are always so close together as you presume. If a certain fat should be solid at 38° F., and should have become liquid when gradually warmed to 40° F., it does not by any means follow that, when the fat is cooled again to 39° or 38° F., it will infallibly return to a solid state. There is a great difference, in this respect, among various fats. Some of them have the melting- and solidifying points actually close together; others again far apart; for instance: palm-oil, fresh, melts at about 86° F., and congeals again when cooled to about 70°. To render it fluid again, it must be reheated to 86° F. There is an intermediate period of sluggishness, which much resembles the condition of a supersaturated solution of a crystalline substance, during which molecular changes progress very slowly, until the *vis inertiæ* is overcome by a considerable overstepping of the critical point. Time is an important factor in these cases.

If a long time can be given to a liquefied fat, at a perfectly uniform, lower temperature, it will be found that the difference between the melting and solidifying point is much less than when only a short time is spent upon the experiment. In the former case, the excess of heat which must become latent has ample time to be gradually absorbed. In the latter, the impatience of the experimenter is apt to overbalance the still existing amount of unabsorbed heat by artificial refrigeration, so that the thermometer registers, not the point at which the fat would have solidified in a natural manner, but the excess of refrigeration applied to hasten the result.

No. 1,678.—**Sulphate of Sparteine** (Dr. J. R. S.).

Sparteine is a liquid alkaloid discovered by Stenhouse, in 1850, in Spartium Scoparium *L.* (Sarothamnus Scoparius *Koch;* Cytisus Scoparius *Link*), the officinal scoparius or broom. Besides sparteine, he found in it a neutral principle, which he named scoparin. Sparteine was further studied by Mills, in 1861, and is best prepared in the following manner: Broom is extracted with water containing sulphuric acid, the extract concentrated and then distilled with caustic soda. The distillate is neutralized with hydrochloric acid,

the solution evaporated in the water bath to dryness, and the residue distilled with solid caustic potassa. The crude base thus obtained is purified by rectifying it over metallic sodium in a current of hydrogen. It is a liquid boiling at 288° C. (550.4° F.) is very little soluble in water, heavier than the latter, has a faint aniline-like odor, and a very bitter taste. It is strongly alkaline and forms crystalline salts with acids.

The sulphate of sparteine made by chemical manufacturers is probably not made from the pure alkaloid, but is most likely prepared by several crystallizations of the first distillate neutralized with sulphuric acid. In the manufacturers' lists, in Germany, the sulphate of sparteine has been quoted as about 1 mark per gramme, but we understand that the sudden demand for it has advanced the price considerably. The sulphate of sparteine is quite soluble in water, and has been reported by M. Germain Sée to be a safe and certain cardiac tonic, in certain respects superior to digitalis and convallaria. Sée has administered it in doses of 0.10 Gm. or about 1½ grain. An editorial on its medical properties may be consulted in *The Medical Record* of Jan. 16th.

No. 1,679.—**Oleate of Manganese** (C. A. G.).

As already stated by H. B. Parsons, in his paper on oleates, abstracted on page 24 of our volume of last year, oleates may be readily prepared by double decomposition between some metallic salt and the most readily obtainable commercial oleate of sodium, namely, white Castile soap (Conti's), which is sufficiently pure for all practical purposes. In order to ascertain the proper proportions, however, either dried or powdered castile soap should be taken, or the amount of water should be estimated in a sample of the soap, and allowance made for it. The molecular quantities of the two substances required are as follows:

$MnSO_4.4H_2O$	+	$2NaC_{18}H_{33}O_2$
sulphate manganese		oleate sodium
222		608

and the products are oleate of manganese (616), sulphate of sodium (142), and water (72).

To make 1 pound of the oleate of manganese there are required, theoretically, 2,523 grains of crystallized sulphate of manganese, and 6,907 grains of pure oleate of sodium. But to allow for slight impurities in the soap, and as it is always best to use an excess of the metallic salt, the following practical proportions may be used:

Sulphate of manganese, cryst.... 5 av. oz.
Dry white Castile soap.....13 av. oz.

Dissolve the sulphate of manganese in 28 pints of water, and the Castile soap, by the aid of heat in 16 pints of water. Pour the latter solution gradually into the former, warm the mixture until the oleate separates, then wash it with warm and afterwards with a little cold water, express the excess of moisture, and transfer the product to proper vessels.

It is white or whitish, and becomes rather hard. To render it more pliable, it may be mixed with petrolatum, by the aid of heat.

No. 1,680.—**Darkening of Elixir of Phosphate Iron, Quinine, and Strychnine** (Jas. W.).

This correspondent says: "I notice that a certain manufacturer's elixir of phosphate of iron, quinine, and strychnine has been reported, on the basis of an analysis, to contain no phosphoric acid at all, and the beautiful green color is attributed to citrate of potassium. I added a quantity of this salt to my elixir (made after the formula given in the U. S. Dispensatory) and after a short time, a beautiful crystalline clustered precipitate was the result." The correspondent asks what this precipitate could have been, and how a permanent elixir, preserving its color, could be made.

Regarding the precipitate, we could only make a guess, since we are a little in doubt as to the precise formula meant by our correspondent. But with reference to his second query, we can furnish him some information placed at our disposal by another of our readers, which will be of interest to many others. His letter will be found under "CORRESPONDENCE."

No. 1,681. — **Alabama Pharmacy Law** (T. C. A.).

There is a law in Alabama regarding the sale of poisons, which you will find quoted in the report of the Committee on Legislation of the American Pharm. Assoc., Proceedings, vol. 30, p. 480.

There is also a pharmacy law which requires all druggists in the State to obtain a license to deal in drugs from some medical board in the State, or from the Medical College of Alabama. See the text of the law in the same vol., same page.

For exact information as to how the law is executed, and to whom and at what time application should be made for a license, we would suggest that you write to some pharmacist in Alabama. You might consult the list of members of the Am. Ph. Assoc. from that State, which is given in the appendix to the Proceedings.

No. 1,682.—**Diuretic Elixir of Buchu, Juniper, and Acetate of Potassium** (L. F. M.).

We must not be understood, when supplying working formulas for preparations such as our correspondent here asks for, as if we regarded these polypharmacal cornucopias worthy of indorsement. We recognize the fact, however, that many of our readers often find themselves cornered by an inquiry after such preparations, which they feel under obligation to furnish, though they, themselves, may be of our way of thinking. We make these remarks here because the preparation wanted by our correspondent belongs to that class of remedies which should not be taken promiscuously, a great deal of harm being often done by such "diuretics." However, here is a formula from one of our files:

Fl. Ext. Buchu..... 1½ fl. oz.
Fl. Ext. Juniper Berries.... ¾ fl. oz.
Acetate Potassium.....512 grains.
Simple Elixir, to make..... 16 fl. oz.

Dissolve the acetate of potassium in the simple elixir, add the two fluid extracts, shake well, and filter after some time.

Of course, a portion of the useful constituents of the two fluid extracts are insoluble in the simple elixir, which generally contains only about 25 per cent of alcohol, and are lost by remaining on the filter.

No. 1,683.—**Prescription Difficulty** (H. C. T.).

This correspondent wants to know what we think of the following prescription, and whether there is a way to make a clear solution of it without changing the properties of the salts:

℞ Ammonii Carbonatis..... ʒ ss.
Quininæ Sulphatis.....gr. xxiv.
Spir. Ætheris Nitr.....fl. ʒ ij.
Syrupi..... .....fl. ℥ i.
Tinct. Veratri vir.....gtt. xij.
Aquæ destill.....ad. fl. ℥ ij.
M. S. Dose: 1 teaspoonful every three hours.

As the prescription is written, it is evident to us that the prescriber contemplated to obtain some direct beneficial effect from the carbonate of ammonium *as such;* a combination of this salt with spirit of nitrous ether being, by no means, an unusual feature in treating certain affections of the respiratory organs. To use an acid for dissolving the quinine salt, therefore, would be doubly wrong. First, because it is not ordered, and secondly, because it would make the employment of the *carbonate* of ammonium useless.

On the other hand, the carbonate of ammonium is chemically incompatible with the tincture of veratrum viride in presence of water, since the alkaloids of the veratrum are liberated and cannot be retained in solution in an aqueous menstruum. Of course, the same incompatibility exists with reference to the quinine salt. But as this is not capable of being sensibly dissolved in the liquids ordered by the prescription, it makes no difference whether the ammonium salt is added or not.

The chemical incompatibility, however, above alluded to, does not render the combination inert. All that is required is to shake the mixture thoroughly every time it is used, and for this purpose a "shake" label ought to be affixed. The preparation cannot be rendered clear by any possible device without altering its legitimate function, and it should, therefore, be dispensed as a mechanical mixture.

No. 1,684.—**Liquid Glue** (W. M.).

From the formulæ we have on file we select the following, the first of which we ourselves have found to answer very well.

1. Dissolve 1 part of glue (or gelatin) in 4 parts of acetic acid by the aid of heat. At ordinary temperatures this is semi-solid, but may be rendered liquid by placing the vessel containing it into hot water.

2. Soak 8 oz. of best glue in 8 fl. oz. of water, in a wide-mouthed bottle, and melt it by placing the bottle in a water-bath. Then add, slowly, 2½ fl. oz. of nitric acid, spec. grav. 1.330, constantly stirring. Effervescence will take place, and nitrous vapors will be given off. When all the acid has been added, transfer the liquid to suitable bottles and cork it well. It does not gelatinize, and is ready at any moment.

3. Take 8 parts of best white glue, or transparent gelatin. Break it up fine and soak it in water until soft. Then pour off the excess of water, melt it on a water-bath, and add 1 part of glacial acetic acid. If required denser, the melted glue may be heated on the water-bath under constant stirring, until a portion of the added water has evaporated.

4. Another authority gives the following modification of the process mentioned under 2. Break 500 parts of the best glue into small pieces, cover them with 670 parts of water, and allow to soak until the glue is soft and nearly all the water has been absorbed. Pieces projecting above the surface of the water must be pushed under. Then melt the mass in a glass or porcelain vessel on the water-bath, and add from 75 to 83 parts of commercial nitric acid, spec. grav. 1.380, very slowly and with constant stirring. When using a weaker acid than that just mentioned, it may happen that the mixture gelatinizes on cooling. In this case, the mass must be remelted and more acid added. But it is better to wait a few days before doing this, as the glue sometimes liquefies of its own accord. Too much acid makes the glue too thin and destroys its adhesive properties.

No. 1,685.—**Euphorbia Pilulifera** (M. S. B.).

This Euphorbia is a native of Queensland (Australia), and is also found in certain portions of the East Indian Archipelago, particularly Java. It is also reported to occur in South America, being called *caiaccia* by some native tribes in Brazil, and *erva dos cobras* ("snake-herb") by the Portuguese

(*Rosenthal*, Synopsis Plant. Diaphor., 8vo, Erlangen, 1862, p. 811). It has been formerly reputed to be a diuretic, and is said to have been used in Brazil and the West Indies as aremedy in snake-bite, while in the East it is used against aphthæ.

Marset and Levison have more recently studied the drug, and found it to be a gentle stimulant and narcotic, of particular benefit in asthma, emphysema, and chronic bronchitis.

The dose of the drug, either dry or in form of fluid extract, is given as 1 to 4 fl. drachms.

No. 1,686.—**To Harden Plaster of Paris Casts** (Inquirer).

Plaster of Paris may be caused to set more quickly if some alum be dissolved in the water used for rendering it plastic. If the gypsum is first moistened with a solution of alum and then again burned, the resulting compound sets very quickly and becomes as hard as marble. Borax may also be used. In 1877, the Prussian Government awarded three prizes for inventions, submitted at its invitation, of processes for hardening plaster casts. The principle of all of these consists in this, that the objects are to be treated with a solution of caustic baryta. But it has been found that, no matter how deep this penetrates, the baryta is again drawn toward the surface when the water evaporates, a portion efflorescing on the outside, and only a thin layer remaining in the outer shell where it is converted into carbonate. This, at the same time, stops up the pores, rendering it impossible to repeat the operation. It has now been ascertained by M. Dennstedt, that the whole mass of the cast may be hardened by applying to it, with a brush made of glass-bristles, a *hot* saturated solution of baryta. To prevent the separation of crystallized baryta at the surface, the object must be raised to a temperature of 60–80° C. (140°–176° F.). But, to produce good results, it is necessary to add to the plaster, before casting, cerain substances with which the baryta can combine. These are silicic acid in some form, or the sulphates of zinc, magnesium, copper, iron, aluminium, chromium, cobalt, nickel, cadmium. With some of these, the resulting object will be colored. As it is, however, difficult to ensure the production of a uniform tint, it is better, when employing salts producing color, to mix the plaster with about 5 per cent of quicklime, or better, to render it plastic with milk of lime, and then to soak the object in a solution of the metallic sulphate. (Compare Dennstedt's paper in the *Ber. d. Deutsch. Chem. Ges.*, 1885, 3,314.)

No. 1,687.—**Decolorized Tincture of Iodine** (T. W. G.).

This correspondent writes: "I frequently use decolorized tincture of iodine, and employ sulphite of sodium for this purpose. Will you kindly inform me what chemical change takes place, and to what extent the alterative effects are impaired?"

On adding to a solution containing free iodine enough sulphite of sodium (or any other sulphite) to discharge the color of the iodine, the following scheme illustrates the reaction:

$$NA_2SO_3 + I_2 + H_2O = NA_2SO_4 + 2HI$$

sodium sulphite. iodine water sodium sulphate. hydriodic acid.

That is, the sulphite of sodium, in presence of water and iodine, will become oxidized, taking its oxygen from the water, while the free iodine will unite with hydrogen, forming hydriodic acid.

A simple tincture of iodine is neutral in its reaction (though, of course, it would not do to use litmus paper as a criterion, since this would be merely stained red and afterwards bleached). Sulphite of sodium and water are likewise neutral in reaction, though the former always, as it were, looks for oxygen and, therefore is prone to exert a bleaching action. But when the three substances are brought together, the result is a neutral substance (sulphate of sodium), and an acid which is more or less irritating, according to its concentration. Now if hydriodic acid were as stable as hydrochloric, or even as hydrobromic, it might do more damage. But it does not long remain unaltered. When it is once formed, and no matter whether it is concentrated or dilute, the oxygen of the air soon begins to affect it, by combining with some of its hydrogen to form water, setting a corresponding amount of iodine free. Hence a tincture of iodine, decolorized as above stated, though colorless when applied to the skin, may produce more or less of a stain; or, at all events, it may set some of the iodine free during the process of absorption, so that the specific effect of the iodine is not altogether interfered with. But it is quite certain that a decolorized tincture of iodine, no matter how prepared, has a more or less different action from one which is not decolorized.

HOSTESS: It seems so odd, Sir; you are so young and yet a Doctor.
YOUNG DOCTOR: Yes, Madam, it does; but you must know I only attend very small children as yet.—*The Idler.*

No. 1,688.—**Borocitrates** (M. J.).

The so-called borocitrates form a class of salts which have a prompt laxative property and are very pleasant to take. Some of them, as the magnesium salt, have also been highly recommended as solvents for urates, in lithiasis, having been found preferable even to lithium salts in this respect, by some observers. According to Hager, better results might be expected, at least theoretically, from the ammonium salt, as the ingestion of the magnesium introduces one of the very agents which is apt to be the cause of very obstinate calculi (triple phosphates).

The borocitrates of ammonium, magnesium, and sodium may be prepared thus:

1. *Borocitrate of Ammonium.*

Ammonium Carbonate.....	gr. 1,500
Citric Acid.....	gr. 2,500
Sodium Borate	gr. 2,000
Water to make.....	fl. oz. 31

Dissolve.

The 2,000 grains of citric acid require for saturation, theoretically, 1,495 grains of carbonate of ammonium. The resulting product, reckoned as dry citrate of ammonium $(NH_4)_3C_6H_5O_7$ will amount to 2,485 grains. The citric acid is taken in excess.

The above solution, therefore, contains in each fluidrachm

10 grains of citrate of ammonium, and about
8 " " borax.

2. *Borocitrate of Magnesium.*

Magnesium Carbonate.....	gr. 1,000
Citric Acid	gr. 2,000
Sodium Borate.....	gr. 2,000
Water to make	fl. oz. 52

Dissolve the citric acid in 6 fl. oz. of water, add the magnesium carbonate and borax, and when solution has taken place, make up the volume to 52 fluidounces.

The above formula orders a considerable excess of citric acid. But it is customary to do so. Frequently, also, the salt is required dry. In this case, instead of adding water when solution has taken place, the liquid is evaporated, then spread upon plates of glass or porcelain, and dried.

The quantity of citric acid necessary to neutralize 1,000 parts of commercial carbonate of magnesium would be about 1,410 parts of citric acid, more or less, depending on the amount of water in the former.

The resulting solution, prepared by the above formula, contains in each fluidrachm about 5 grains of citrate of magnesium reckoned as anhydrous.

3. *Borocitrate of Sodium.*

Sodium Bicarbonate.	gr. 2,000
Citric Acid.....	gr. 2.000
Sodium Borate	gr. 2,000
Water to make.....	fl. oz. 54

In this preparation, the citric acid is likewise in excess. 2,000 grains of it requiring 2,456 grains of the bicarbonate.

The solution contains about 10 grains of citrate of sodium in 1 fluidrachm.

The dose of any of the above salts may be varied, according to circumstances, up to about 90 grains per day, of the dry salt.

It is best administered with a little bicarbonate of sodium, so as to produce an effervescent solution, and flavoring may be added, when desired.

No. 1,689.—**Journal for Soap Industry** (T. P. W.).

The *Oil and Colorman's Journal*, published at 19 Ludgate Hill, London, E. C., England, 7*s.* 6*d.* per year, devotes considerable space to the manufacture of soaps. We know of no journal in the English language which is exclusively devoted to this subject.

Queries Referred to our Readers.

(If any reader is in possession of information regarding any of these subjects, he will oblige us by furnishing the same.)

1. What are the principal ingredients in Easton's Imperial Piano and Furniture Polish?

2. Singleton's Eye Ointment.

The Cinchona Trees of all ages now under cultivation in the Wynaad district (S. W. India) number 5,000,000.